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THE PARCELS-POST.

IT is an unfortunate characteristic of human nature that a very considerable number of men can be brought to favor almost any political or economic doctrine if they are persistently bombarded with arguments in its favor.

Even the constant iteration of a given doctrine, without any accompanying arguments or evidence, will at length produce a large number of converts, especially if it be judiciously intimated that the triumph of that doctrine will in some way inure to the profit of the persons appealed to.

If, as commonly happens, some men of more or less public prominence can be induced to lend their names to the movement then many other ordinarily reasonable men at once assume that the movement has a substantial basis of reason, and without further thought or investigation lend it their own sanction and support.

Who are the Special Champions of the Parcels-Post?—A brief investigation will disclose the fact that the demand for parcels-post originated with those who had something to sell, and who for either good or bad reasons were not satisfied with existing methods of transportation. There cannot be the slightest doubt that the mail order houses have been first and foremost in the advocacy of this innovation in the mail service, that they are strenuously urging its adoption, and that they have been and still are expending many thousands of dollars in maintaining an energetic propaganda in its favor.

The movement did *not originate with the consumers or purchasers of these goods*, and these did not join in it until they had been persuaded that their interests would be greatly served if the movement should be successful.

Of course the propaganda has been skillfully framed, like every other piece of political shenanigan, to simulate a movement for the general good, inspired by pure philanthropy and financed by those who claim to hold their fortunes in trust for the welfare of humanity.

One hesitates to impugn the motives of the professed altruist, but the very palpable benefits to accrue to the mail order houses through the inauguration of a parcels-post and their lavish expenditure of money in the effort to secure it is as much calculated to arouse suspicion as is a wobbly wooden leg in a dry township.

How Parcels-Post Sentiment is Manufactured to Order.—In a publication devoted to the interests of the mail order houses—for the business has already developed to a point where it is necessary to have its special organs—it is stated that these establishments regularly keep in the field a corps of traveling representatives to visit the rural districts, and while distributing catalogs and soliciting orders are instructed to take part in local social affairs by helping to organize social and literary societies, farmers' "uplift clubs," etc., etc.

"Every one of these special salesmen is furnished with an outlined campaign for both social and regular work, which he is compelled to carry out in the face of the strongest kind of rural competition."

All of these devices are merely "different links in the same string of sausage," the parading of hearts bursting with affection for the interests of the dear *"common pee-pul,"* and the bounteous distribution of that favorite confection of the American voter, buncombe pudding with plenty of flapdoodle sauce.

It is these same agents who throng the farmers' institutes lecturing upon the "social uplift," but whose hoisting efforts are confined mainly to boosting parcels-post in the interests of those who pay their salaries.

Are the Parcels-Posters Frank in Their Statements?—A witness in a court of law swears not only to tell the truth and nothing but the truth, but to tell the whole truth. Constructively it is as much a perjury to suppress a material portion of the truth as to make a positive misstatement of fact.

With this thought in mind consider the following statement of an influential magazine which advocates parcels-post:

"Why can the Englishman send a package weighing 11 pounds from one end of his country to the other, while the American can mail nothing over four pounds, and must pay 64 cents for that?"

The facts suppressed are that the combined area of the British Isles is about equal to the area of three average American states, and that the British post serves a population which averages approximately 350 inhabitants to the square mile, while the U. S. post serves a population which averages about 25 inhabitants to the square mile. The obvious intent of the statement quoted is to convey the impression that the American citizen is paying more for the same service than the British citizen, whereas in proportion to the average length of haul the U. S. post is now as cheap if not cheaper than the British post.

The Express-Company Argument.—It is asserted, with almost damnable iteration, that the country is driven to the expedient of parcels-post to protect itself against the extortion of the express companies and other transportation agencies.

That the express companies and railroads have more than once been guilty of

extortion will be admitted by most of their patrons, and hence this assertion at first looks like an argument. But let us see:

By its authority to regulate interstate commerce, the Federal Congress has absolute power to prevent extortion on the part of the transportation companies. Why are the parcels-post advocates not in the ranks of those who are demanding that the government shall exercise this power? Why should the government enter upon the dangerous and costly experiment of parcels-post as a corrective of a condition that Congress can correct by the simple expedient of saying to the express companies and railroads, "Thou shalt not"?

The sarcasm of the argument that the change will punish the railroads becomes apparent when we consider that the change means the transferring of merchandise from the freight train which pays the lowest rate per ton mile, and from the express train, the next lowest, to the mail train which pays the highest rate per ton mile; and that the railroad company will be saved the expense of handling, and have the advantage of dealing only with the Federal Government, always a liberal paymaster, instead of dealing with tens of thousands of individual shippers who are constantly clamoring for better service and lower rates.

Effect on the Small Tradesman.—One effect of a parcels-post stands out with such distinction that only those who are infatuated can fail to see it, namely, that the introduction of this system means certain and irreparable injury to the small tradesmen of the small community, to those dependent upon him, and consequently to the community itself.

Some are persuaded, or say they are, that parcels-post will not really injure the local dealer to any appreciable extent, because the increased trade of the mail order houses will be largely due to the stimulation of the farmer's commercial instinct, and to the creation of a demand for articles which the retail dealer does not carry in stock.

Upon this point the statements of the mail order people certainly ought to be of some weight as evidence. Speaking of the methods to secure business a mail order house publication says:

"The mail order houses are going after business with more determination and a stronger selling force than ever before. They have reached the point where they find it necessary to meet rural competition by resorting to personal work in each community."

If this declaration does not breathe the spirit of competition with local dealers, then we are at fault in its interpretation.

That dealers located in the villages and small towns should take their chance in the race for trade with those who have abundant capital and are located in the large centers of population is conceded, but it should be a fair race and no favors, i. e., the dealers in the large centers should not be aided by government subvention, as parcels-post would be in effect.

It may be asked, if the small merchant cannot meet the competition of the mail order houses under the parcels-post, how can he meet it when express and freight rates are reduced to reasonable figures?

The two cases are not at all parallel. Freight and express rates will never be reduced below the actual cost of carriage plus a reasonable margin of profit to the carrier.

The small tradesman is not asking for any exercise of governmental authority to protect him in his business, he is only protesting against its exercise to crush him by giving his large competitor certain decided advantages in the way of transportaton.

Can the Local Dealer Extract Profit from Parcels-Post?—But the local dealer is to have the same privilege of sending and receiving goods through the mails. Is this not giving him the same chance as the great mail order concern? In form, yes; in substance, no.

The opportunity offered to all is one which, in the nature of things, can be utilized only by the few who are located at centers of population, and can command the capital necessary to establish an extensive business organization, to employ high priced business experts, and to do the various other things that big business can do, but which little business cannot.

It would be just as reasonable to say that the exemption of railroads from taxation would be fair to all, because any man might build a railroad if he wanted to, and thus have an investment free from tax.

The claim that parcels-post will benefit the local retailer is at best but graveyard whistling to keep up courage. If it were true then the mail order people who are spending thousands of dollars in a propaganda for something which will only help their competitors, are greatly in need of enlightenment.

Even the advocates of the system admit its possible dangers, by their concession to limit it to "rural free delivery routes."

The success of parcels-post with this limitation we fear would only once more illustrate the story of the camel which being permitted to put his head into his master's tent, ended by thrusting his whole body under the canvas.

The idea that the small retailer will be able to extract any material benefit from parcels-post is a mirage that will disappear in vapor as it is approached.

The Farmer's Part in Parcels-Post.—That the farmer has been enlisted in the movement by an appeal to his self interest, and by persuading him that he has everything to gain and nothing to lose from parcels-post is evident to any one who has taken the pains to study the history of the movement.

But if the farmer is persuaded that the villages and towns of his neighborhood can be destroyed without increasing his taxes, decreasing the value of his lands and injuriously affecting his interests generally—if he believes that a local market for his products can be preserved when he is to do all of the selling and none of the buying therein, then the honest agriculturist is destined to experience one of the shocks that always come to those who collide with the logic of circumstance.

The Milk in the Mail Order Cocoanut.—While there may be other reasons as well, there is strong ground for the opinion that the mail order interests desire parcels-post because it will enable them to ship their goods long distances for less than the cost of carriage, instead of paying in proportion to the length of haul as they would have to do with an express company.

The fact that the Postal Department depends upon the profit made on short haul matter to cover the deficit on long haul mail matter may not be greatly objectionable when the mails are confined to letters and to legitimate newspapers and magazines, but it is fundamentally unjust to apply the same rule to freight. Either the short haul people will pay more than the service is worth, or the long haul people will have their goods freighted for less than the service is worth.

The government pays the railroads on the basis of the ton mile for matter transported in its mail cars. Why should not those who ship merchandise by mail be made to pay upon the same basis?

Such a modification of the parcels-post—i. e., to make the charge proportional to the character of the merchandise, its weight and distance carried—would be strictly just, but this would destroy the very thing for which the parcels-posters are striving, namely, *to have their long haul merchandise carried for less than the cost of carriage, and consequently for less than any private corporation would carry it for.*

This is the milk in the parcels-post cocoanut, and any amendment of the plan which would prevent the "beating" of the government by the mail order concerns and compel them to pay for the actual cost of the service rendered, would, so far as these pure and undefiled patriots are concerned, kill the parcels-post project too dead for decortication.

J. H. BEAL.

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LORD LISTER.

A FEW short weeks ago, England's famous church, Westminster Abbey, received within its historic and venerable walls the mortal remains of perhaps the greatest hero, if heroism may be construed in the light of the greatest service, that England had ever known. "Peace hath her victories no less renowned than war." Such victories for the benefit of mankind Joseph, Baron Lister had won, and won for himself undying fame. Greater honors from a grateful king and country were conferred upon him than upon any medical man in the history of the country. He was made a Lord and given the right to sit amongst England's greatest noblemen in London's famous Parliament House.

Born in 1827, in the comparative infancy of modern science, especially of the healing art, he was spared to a ripe old age that he might with his own eyes see the benefits he had conferred upon suffering humanity. Born in the village of Upton, in the county of Essex, near London, he was an illustration of the fact that great men spring from the ranks of the moderately well-to-do and intelligent. His father was an optician of some note and was able to give his son an education which terminated in graduation in Medicine and Surgery at the London University. At thirty-five he was a teacher of surgery at the Glasgow University and began his investigations leading to his promulgating, about 1869, his antiseptic treatment of wounds and surgical operations. Due chiefly to his methods, the cavities of the body, especially of the abdomen, have been invaded by the surgeon's knife with such triumphant results as to revolutionize surgical practice.

Pharmacists are chiefly interested in the great number of antiseptic dressings which the methods of Lister brought into use, and of which they became the only purveyors and in many instances the manufacturers.

Lister's example of spotless cleanliness has pervaded all our daily lives, military, business and domestic. Every hospital is as a temple to his memory, every soldier's knapsack contains a package of his dressing.

Millions of lives have been saved because he lived. "Peace to his ashes."

THOS. LATHAM.

Contributed and Selected

ADVANCEMENT OF PROFESSIONAL STANDARDS THE RATIONAL MEANS FOR THE ADVANCEMENT OF THE INTERESTS OF PHAMACISTS.

G. H. MEEKER, PHAR. D., LL. D.

This paper is primarily a plea for the frank and unreserved recognition of the real conditions which confront pharmacists; and for an effort on the part of the American Pharmaceutical Association to encourage a movement to compel all young men who are about to enter the profession of pharmacy to be so thoroughly equipped in its scientific branches—especially chemic and pharmaceutic technology; general, pharmacognistic, sanitary, clinic, physiologic and research laboratory methods; drug inspection; and bacteriology—that the *laboratory of the pharmacist* shall expand from its now comparatively limited field of dispensing and minor preparations to that truly comprehensive abode of scientific pharmacy which is its legitimate and profitable goal—in which the pharmacist will be equally competent to exercise an intelligent control over the manufacturer; to act as the diagnostic as well as the dispensing adjunct of the physician; or to serve the general chemic, as well as pharmaceutic, needs of the public at large. Secondarily, there is the hope that practicing pharmacists may come to perceive the advantages of taking into their employ only those young men who have had the benefit of comprehensive professional training. Finally, the paper dwells upon certain topics which are collateral to the main issues.

Throughout the series of efforts that are being made by the well-wishers of the profession for the advancement of the material advantages of pharmacists, one observes a lack of unanimity of opinion as to the proper mode of procedure, and could well be impressed with the thought that there is a great deal of groping in the dark. If efforts were really being directed upon fundamentally correct lines, such lack of unanimity of purpose should not be observed. It is submitted here that true progress for the pharmacist is only to be found through first recognizing the pharmacist's own shortcomings and then correcting them. Such a procedure requires courage, for the pharmacist is only human, and his natural self love would indicate that he should welcome all suggestions that he himself is thoroughly praiseworthy and that the ills from which he feels he suffers come to him exclusively because of external conditions. Conversely, he resents any imputation against his own complete rectitude. The indefinite character of the work being done for the advancement of pharmacists really arises from the fact that he and his well-wishers are loath to attack the problem from the radical standpoint of unreserved self-analysis. If, however, the pharmacist but consider briefly the experience of the medical profession in this regard,

he will see how advantageous it has been to that profession to attack their professional problems from such a standpoint.

It is only a comparatively few years ago that practically anyone could lawfully practice medicine, and many of the medical practitioners had obtained their knowledge of medicine merely through having been handy men about physicians' offices. In those days the mere fact that a man was a practitioner of medicine brought him no particular public respect. Those men in the profession who were greatly respected achieved the dignity because of their own merits and not because of the fact that they belonged to a profession which in itself commanded respect. The fact that medical men have raised themselves to a position where the mere fact of being a licensed medical practitioner commands the esteem of the public, is due to the fact that in these days a man cannot become a medical practitioner except he has complied with the conditions of such a difficult series of preliminary requirements as render it impossible for an ignoramus or a gross incompetent to occupy a place in the profession. This state of affairs has been brought about primarily through the selfishness of physicians. The physicians who practiced under the former conditions, seeing how easy it was numerically to overload the profession, and suffering from the false pretensions of unworthy practitioners, sought from such selfish reasons to reduce the number and improve the quality of those practicing medicine by imposing difficult conditions upon such as were about to enter the profession. The conditions of medical licensure have been so increased that today, as a rule, a man requires about four times as much preliminary education in order to become a student of medicine, as is required from those who desire to become students of pharmacy; and the standard education in medical colleges embraces about twice as much collegiate work as is demanded of students of pharmacy. The result of all of this has been to minimize the number of those who can enter the profession of medicine; vastly to increase their efficiency; and resultantly to command public respect and increased fees for the profession generally.

The present medical standards are, however, not the final standards, as the progress is toward still more difficult standards; and there is today a large and influential element in the medical profession which is laboring to the end that only college graduates in arts and sciences shall be eligible to become students of medicine, and that the medical courses themselves shall be of five years' duration instead of four. It is asserted with no fear of successful contradiction, that pharmacists would be taking the very best course for their own advancement should they follow this example of their medical brethren. If the pharmacists of America would consult their own selfish interests—remember that they themselves are already within the folds of the profession, and would, of course, so remain—and would bend their efforts towards influencing state boards of pharmaceutical examiners notably to advance their requirements of preliminary education, of pharmaceutic education, and of state board examinations, they would at once minimize the number of men entering the profession of pharmacy; and would insure that those who do enter the profession would be of such a character as universally to deserve and command the public respect and support. The program adopted should admit only high school graduates to schools of pharmacy; and the courses of instruction in pharmaceutic colleges should at

least equal three college years of eight months full time each, which is the standard of dental colleges. State board examinations should correspond. It is very likely that any standards for entering the profession of pharmacy which would fall short of the standards thus briefly stated, would be ineffective for producing satisfactory results in the premises.

In the foregoing, consideration has only been given to the interests of pharmacists. In all such programs, however, it must never be forgotten that the first interests are the public interests. But the proposed program fully conserves the public interests; and, hence, fulfills the basic condition. As a matter of fact, under present circumstances the public interests are not conserved by pharmacists. In the United States there now exist State pharmaceutical licensing acts and State and Federal pure drug laws which can only logically be interpreted to mean that when a licensed pharmacist vends drugs to a purchaser, the purchaser has the right to assume a contract between himself and the pharmacist, in which contract the pharmacist agrees to vend only such drugs as he knows *of his own knowledge* to comply with the pure drug laws. The pharmacist cannot escape this responsibility. He is licensed by the various commonwealths specifically to protect the public interests in this as in other regards, and the responsibility unquestionably rests upon him. It is sad but true to say that the pharmacist is not keeping his compact with the public. He habitually shirks his duty in this regard while hiding behind the weak defense that he purchases his drugs from manufacturers under the manufacturers' guarantee that the drugs comply with the laws. The manufacture, however, is only responsible to the pharmacist. The public knows nothing and cares nothing about the manufacturer: its dealings are exclusively with the pharmacist. The manufacturer himself has simply exploited the pharmacist in his weakness, and the pharmacist in yielding to the weak claim that he has the manufacturer's guarantee, is not only being false to the public, but also selling his birthright for a mess of pottage. Should the pharmacist continently subject the manufacturers' guarantees to analytic inspection and control, he would be astonished to find how often U. S. P. standards are violated. Such inspection would soon result in the elimination of the smug fraud which under present conditions is alas too frequent.

If we analyze the ills under which pharmacists suffer, the really potent ones may be tabulated as follows: Too many drug stores; abuses by manufacturers; dispensing by physicians; unethical competition of unworthy pharmacists; lack of due respect accorded by the medical profession and by the public to the average pharmacist; tendency on the part of students of pharmacy to regard pharmaceutic licensure rather than professional excellence as their goal; and predominance of the mercantile activities of pharmacists over their professional activities—all combining to make the pharmacist's position less profitable, less dignified and less happy than it should be.

It is submitted that should the state boards of pharmaceutical examiners demand standards such as above proposed, such action would automatically and progressively remedy the stated ills. Thus there would be an immediate reduction in the number of new drug stores established, owing to the fact that fewer licenses would be issued.

Abuses by manufacturers would be inhibited because the entry into the profession of pharmacy of men so well educated as proposed would be certain to bring to bear upon the manufacturers such a fierce light of intelligent criticism that sordid manufacturers would be compelled to reform themselves and to occupy their proper spheres as economically necessary servants of the retailers rather than to continue as their covert misleaders or masters.

With regard to subservience to manufacturers, it may be said that while manufacturers are undoubtedly necessary in the drug trade, they are not necessary to the present extent. Retailers have become so accustomed to purchasing preparations from the manufacturers, that their tendency has become to regard practically all preparations as economically necessarily purchased from the manufacturers. The truth of the matter is intermediate. Such preparations as can from the very nature of things be more economically purchased from the manufacturers, should be so purchased. But there are many preparations now purchased from the manufacturers which could be prepared to better commercial advantage in the laboratory of the apothecary—provided he arose to his opportunity and constantly maintained an active laboratory organization. The complete collegiate training in pharmacy which is advocated in this paper would be largely along the lines of chemic laboratory training. The graduates of such courses would necessarily be in a better position to begin active competition against manufacturers than students trained according to the present standards. Under advanced standards, no doubt each drug store would have its own laboratory, fully equipped to perform all of the analytic and manufacturing functions which would normally pertain to the drug store laboratory. Furthermore, intelligent criticism would no doubt result in the establishment of coöperative laboratories conducted by and devoted exclusively to the interests of the retailers; and in which all goods offered by manufacturers and wholesalers would be subjected to chemical analysis and control, so that only such goods would be recommended to the individuals thus working coöperatively, as would properly meet their established standards. The result would be that mercenary manufacturers would soon be subjected to such a black-list program as would make it impossible for them to remain in business.

Dispensing by physicians can only be eliminated through the concerted moral influence exerted by an enlightened pharmaceutic profession upon manufacturers, public and physicians. This influence would be exerted by demands upon the manufacturers; by a propaganda of education of the public; and by the observance of a correct code of ethics between two mutually esteemed professions—obedient to which code of ethics the pharmacist would refrain from counter prescribing as rigidly as the physician from office dispensing.

Unethical competition is always fostered by low professional standards. It never thrives when the professional standards are high and when the light of an intelligent public and professional sentiment is directed upon it.

Since the present lack of suitable respect for pharmacists is due simply to the low professional standards, as soon as the public shall learn of the elevation of the standards to a high level, on a parity with the professions of law and medicine, it will not be slow to give its recognition to the same. Indeed, so quick is

the public to recognize real merit, that an examination into the advances that have been made by pharmacists will show how hearty has been the reciprocation of the public in the past efforts of pharmacists for advancement. It need only be cited that the public has cheerfully agreed to the principle of licensure by state examining boards; and it has cheerfully given its moral support to all of the efforts that have been made by the pharmacist for the suppression of illegal traffic in drugs and for the adoption of legal standards to which the drugs must comply. These standards, be it noted, are the standards set by the pharmaceutic profession for itself in the United States Pharmacopœia and the National Formulary, both of which were recognized by the Federal Government in connection with the present Federal Pure Food and Drugs Act. Indeed, the public has in this way given to the United States Pharmacopœia and to the National Formulary a legal position which they can scarcely be deemed properly to occupy, for the reason that the effect of this legal recognition is to delegate the legislative powers of the people to the unofficial committees who set the standards establishd by the Pharmacopœia and Formulary. With simply casual exceptions, even the profession is forced to remain in the dark with regard to the standards of the United States Pharmacopœia. The Revision Committee in publishing the Pharmacopœia merely specifies the standards and publishes no volume in which it informs the profession and the public as to the reasons for the adopted standards. There is a crying need for a supplement to the Pharmacopœia in which with respect to each standard set in the Pharmacopœia the reason for that standard should be clearly stated. Unless this is done, the conclusions reached by the Revision Committee are in the nature of star chamber proceedings, the results of which proceedings must be blindly accepted by the general profession and public. Under such circumstances the profession must be justified in feeling that an insult is offered to its intelligence, in that it must perforce accept, arbitrarily, scientific conclusions in the absence of the scientific premises upon which they are based. Further, there remains the danger that individuals of the Revision Committee might consciously or unconsciously be subject to the machinations of designing manufacturers such that standards might be set high or low according to certain selfish interests. Such danger would be at once eliminated if the reasons for the standards were officially set forth for the information and free criticism of the whole profession.

There is no doubt that all colleges of pharmacy are today suffering from the fact that the student fixes his attention upon the securing of his license to practice pharmacy; that he pursues instruction in various scientific branches—notably in analytic chemistry, pharmacognosy, and chemic and pharmaceutic technology—because he realizes that he must possess a certain amount of information in these scientific subjects in order to be able to pass the state board examinations. As soon as the candidate becomes a licentiate he too commonly devotes himself to the merely mercantile aspect of his profession, and relies upon the manufacturer to furnish the really scientific knowledge which he himself should have acquired and professionally applied. The trouble is that the preliminary educational requirement and the college training received by being adjusted to the inadequate established state board standards fail to carry the student to that excellence in scientific knowledge which would cause him to feel entirely competent himself to

handle the immense scientific problems of the drug trade of today. If, instead of stopping short of this standard of excellence, the preliminary education and pharmaceutic collegiate training were extended sufficiently, the graduate would no longer consider himself a mere tyro in the scientific aspects of the profession, but would feel fully competent to stand upon his own qualifications.

The unfortunate predominance of the mercantile side of the retail drug trade over the professional side, is due again to this same difficulty of insufficient training. The business of the drug store laboratory, if it fully perform its mission, requires such an extraordinarily complete scientific training that, with the usual training of the present day, those who must confront these problems are appalled by their immensity, weakly submit to the domination of the manufacturer, and if they ever were competent to make a beginning along independent lines and to progress from that beginning to its full fruition, their initial possibilities wither and die from inanition. There is no remedy for this condition except to prohibit the entrance into the profession of all except those who are so reasonably well qualified that they are in the best sense competent to begin and continue the attack upon their great problems.

In conclusion, it may be said that there are numerous opportunities (now neglected) for the employment of the talents of thoroughly scientific pharmacists. One of the most attractive of these avenues has already been suggested to the profession in the field of clinic analysis. It has been proposed to have a joint examining committee designated by the American Medical Association and the American Pharmaceutical Association. The duty of this committee would be to examine and issue certificates to those who have passed special examinations and have so become entitled to call themselves *certified clinic analysts.* Men who had run the gauntlet of these examinations would at once receive the confidence of the medical profession, which would soon learn to submit to them, for chemic and microscopic examination, urine, sputum, etc., analyses of which are so essential to the practice of medicine; which analyses the physicians are too busy or too unpracticed to perform; and which analyses should properly be made in the drug store laboratories. The respect and good feeling between the professions of medicine and pharmacy which would be engendered by this favorable relationship, cannot be overestimated.

A great change is at present imminent in the materia medica. Owing to the facility with which those schooled in synthetic organic chemistry are able to turn out new synthetic drugs, the drug market has been flooded with a whole host of so-called remedies, many of which, after a brief vogue (secured perhaps through clinic reports influenced by purchase) disappear wholly or completely from view. The pharmacist is thus compelled to carry an immense line of unprofitable goods, while the public health is exploited and jeopardized in wholesale therapeutic experimentation. Many of these synthetics are also the subject of unjust product patents issued to citizens of foreign countries which do not grant equal patent rights to American citizens. The intelligent criticism of a great body of scientifically trained pharmacists would undoubtedly aid in narrowing the materia medica to rational lines, and would be potent in influencing Congress so to amend the patent laws that aliens would be denied greater patent rights in the United

States than would be granted to the citizens of the United States in the aliens' native lands.

In view of all of the foregoing, it is recommended that the American Pharmaceutical Association adopt the following resolutions:

Resolved, That the Committee on Education and Legislation is instructed to conduct a campaign having as its purpose the adoption of a uniform standard for pharmaceutic licensure throughout the United States: and that this standard shall, as a minimum, be a preliminary education equivalent to graduation from a standard high school, a pharmaceutic collegiate education of three years of eight months each, and correspondingly searching state board examinations.

Resolved, That the Committee on Education and Legislation of the American Pharmaceutical Association is instructed to conduct a campaign having as its end the establishment of a joint committee of the American Pharmaceutical Association and the American Medical Association, to examine applicants who desire to have the right to publish themselves and do business as certified analysts.

Resolved, That the Committee on Education and Legislation of the American Pharmaceutical Association is instructed to conduct a campaign having as its end the establishment of patent reciprocity between the United States and foreign countries, so that citizens of foreign countries shall be denied by the United States greater patent rights than the citizens of the United States would be granted by the respective foreign countries.

Resolved, That the American Pharmaceutical Association recommends to the Committee on Revision of the United States Pharmacopœia, that they shall issue a supplement to the Pharmacopœia, in which supplement there shall be set forth intelligibly the reason for each requirement of the Pharmacopœia, especially for the standards of purity and strength of the substances of the Pharmacopœia..

Resolved, That it is the sense of the American Pharmaceutical Association that in the traffic in drugs between the public and the retail druggists, the retail druggists are responsible to the public for the adherence of their vended Pharmacopœia and Formulary preparations to the established standards, and that the American Pharmaceutical Association recommends that pharmacists should individually or co-operatively subject all articles so vended to analytic inspection and control.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

THE PHARMACOPŒIA, THE PHARMACIST AND THE PHYSICIAN.

E. GOODMAN, PH. G., M. D.

The experience of a lifetime in the field of pharmacy and medicine, convinces me that in the last decades, we have pursued a mistaken policy. The aim of pharmacists has been to haul the public in the same wagon with the physician, whereas each should have been carried in a separate vehicle.

The present relation of physicians and pharmacists is an anachronism. The inception of the Pharmacopœia was due to the needs of physicians, who at that time had little or no knowledge of chemistry, materia medica, pharmacognosy and therapeutics, but depended implicitly on the special training and learning of the pharmacists for the means of medication.

The outcome of this status was that the physicians and pharmacists got together, the physicians naming the remedies of their choice and the pharmacists elaborating ways and means to produce the most potent and palatable preparations from the crude drugs. The selected list of remedies was then assembled into a work and

the sanction of the government obtained to make this work the established authority for all pharmacists, so that all the preparations in use by physicians might have an established standard of strength and quality. Therefore, the original design of the Pharmacopœia was—a *standard* for pharmacy and a *guide-book* for physicians.

This little work proved a stimulus for ambitious workers, who collected data relating to all crude drugs, compiled histories, commenced research work, established tests for identity, purity and strength, wrote up the therapeutic actions of medicines and their poisonous properties, and elaborated working formulæ for making the best and most dependable preparations.

The result was the U. S. Dispensatory, a partnership collaboration between physician and pharmacist. Wood and Bache, Stille and Maisch were the pioneers in this line of work.

But—this co-operative work gave to each the knowledge of the other and each began to use it for personal profit and usurped the prerogatives, one of the other. In time, we find the physician the principal research worker, and that a rival to the physician, sprang up in the person of the pharmaceutic manufacturer, who cut his rival, the pharmacist, out in the affections of the physician. So, in these times, it is the manufacturing chemist and pharmaceutic and biologic manufacturer, who furnishes the pharmacopœia for physicians, and not the pharmacists.

But another factor has also entered the field of therapeutics—the public. It, in turn, has absorbed the knowledge of the family physician, or been "put wise" by printed "family doctors" and the advertisements of proprietary medicine concerns. The pharmacist is therefore now compelled to take his orders from three sources, viz: the progressive physician, the conservative physician and the public—and does a little on his own hook besides.

Progressive physicians are always on the lookout for something new and better and are continually changing their materia medica. They discard the older remedies and preparations for the latest. Tr. Iron, as a remedy for diphtheria, has in turn been displaced by papoid, by mercury bichloride, by Loeffler's Solution, by Tr. Iodine, and lastly by diphtheria antitoxin. Tr. Iron, as a chalybeate, has been displaced in turn, by the scale salts of iron, the peptonates and nucleates; the base, by manganese, copper and vanadium. Iron, as a haemostatic, has been displaced, in turn by calcium chloride, adrenalin hydrochloride and stypticin. Silver nitrate has been displaced by the nucleates and colloidal silver. Potassium, by sodium, strontium and oleaginous bases.

The conservative doctor is loath to let go of time tried remedies, which have stood him in good stead and still clings to his calomel, opium and bismuth, his galenicals and elixirs, his pills and powders, liniments and lotions, plasters and ointments.

The public exercises, in a ten fold greater degree, its prerogative of self-medication. It uses indiscriminately all the remedies it ever heard of, ranging from "old granny" household remedies to the latest synthetics, from homeopathics to narcotics and from patents to poisons. Antikamnia, aspirin, aloin, strychnine, belladonna pills, cascara aromatic, purgens tablets, galangal root, zedoary, catnip, ergot and hundreds of others, are ordered with a nonchalence and authority which are astounding. Now still a fourth factor has taken a hand in the vending of medicines and drugs and that is—the legislature. It orders what may and what may

not be sold; by whom and to whom it may not be sold; for what purposes it may and for what purposes it may not be sold; in what strengths it may and may not be sold; how it must be labeled, how it must be registered and how it must stand the tests for purity and strength.

And the distraught druggist must stand as a buffer for all these various onslaughts. Can you blame him, then, if he demands a safeguard against each? He, no longer, must serve the old time doctor alone, but the new doctor, the insistent public and the fastidious legislature. Therefore, he desires an authoritative work, which shall include all the demands made upon him. If our government decrees to be a paternal government, it must be paternal not only to one class, but to all classes. The druggist must, therefore, have just as authoritative a formula for Godfrey's cordial, Dewee's carminative and Jackson's pectoral syrup, as for paregoric, laudanum or elixir heroin. He is just as much in need of complete information regarding galenicals, as he is of antitoxins, bacterins and vaccines.

On the other hand, physicians no longer care for pharmacopœial remedies, or the Pharmacopœia. They look to the laboratories, the manufacturers and the clinicians for their remedies. They no longer rely upon a fixed dose and certain result, but are guided by clinical and bedside experience. They have little use for the old time drug stores; they keep their armamentarium in their office or hospital; they dispense, as well as prescribe; they rely more on mechanical, hygienic and prophylactic treatment, than on medication.

Physicians and pharmacists having thus grown apart, each must look to his own wants. The pharmacist is a purveyor and must therefore be in a position to supply all his patrons; he is answerable to all classes of physicians, to the public and to the law and must therefore have the protecting influence of each—authority. Whereas the Pharmacopœia sufficed when he served only one master, now that he must serve three, nothing short of an abridged dispensatory will satisfy him.

On the other hand, the physician is the apostle of progress; he is ever striving to break away from old methods and remedies; he changes his materia medica to suit himself; he needs his own authority and the conservatives must follow in his wake, if they would maintain their professional standing and success. He wants nothing in common with the lay doctors, or quacks; he wants his own standard of quality. Therefore, a Pharmacopœia along old-time lines is no longer sufficient, for druggists and physicians no longer want to be bound to certain remedies for ten years. Practically, the result has already been accomplished and only lacks elaboration and the stamp of authority. A comprehensive formulary is a necessity and besides the formulæ, it should contain all the crude drugs in common use, with their official, botanical and common names; modes of identification, sophistications, methods of preservation and indications of deterioration. It should contain all the chemicals, oils and other preparations in common use with tests for identity, purity and strength, properties and uses. In fine, the future pharmacopœias should be abridged dispensatories, only the commercial history, botanical descriptions and therapeutic actions being eliminated.

The physicians have adopted as their standard the publications of the Council on Pharmacy and Chemistry of the A. M. A. So we find the divorce actually accomplished and only awaits the official sanction.

NOTES ON CHEMICAL TESTS OF THE UNITED STATES PHARMACOPŒIA.*

CARL E. SMITH.

(Continued from page 212.)

SPECIAL METHODS.

ACETANILIDUM.—The melting points of good products may range between 112° and 115°. Chemical authorities give figures varying from 112° to 116° for the pure substance. A boiling point determination is not required as a test of purity. The U. S. P. requirements regarding inorganic impurities are somewhat vague; foreign pharmcopœias allow limits of 0.05 to 0.1 per cent; products containing not more than 0.05 per cent. of non-volatile matter are readily obtainable.

ACETONUM.—The tests and physical constants given cannot be entirely relied upon to determine if a given sample contain the required percentage of absolute acetone, because of the probable presence of small amounts of methyl alcohol. Messinger's method is generally regarded to be the most reliable for an assay, although it includes any "acetone oils" that may be present also, but these, when present in considerable quantity, are detected by a raised boiling point. The details may be conveniently carried out as follows: About 2 gm. of acetone are weighed in a stoppered weighing-bottle containing about 10 cc. of water, then diluted with water to 1 liter. Of this solution, 20 cc. are mixed with 25 cc. of n/1 sodium hydroxide in a 250 cc. glass-stoppered flask, 50 cc. of n/10 iodine added, and the mixture allowed to stand 15 minutes. It is then acidulated with about 25 cc. of n/1 hydrochloric acid and the liberated excess of iodine titrated with n/10 sodium thiosulphate. Each cc. of n/10 iodine (O=16) consumed in the formation of iodoform corresponds to 0.0009675 gm. of acetone. A blank test should be made with the reagents and any iodine consumed deducted from that consumed in the determination. The U. S. P. boiling point applies to normal barometric pressure only. Since glass loses weight during contact with steam and hot water, platinum and well-glazed porcelain dishes are preferable for determining the non-volatile matter.

ACETPHENETIDINUM.—A melting point interval of 134° to 135° is slightly narrow, as satisfactory products often begin to melt at about 133°. Non-volatile matter should not exceed 0.05 per cent. In the bromine test for acetanilide, the bromine water should be added drop by drop, with agitation after each addition, until the solution is permanently yellow. In case a considerable amount of bromine water is added all at once, a turbidity or precipitate is liable to form with pure acetphenetidin. The second test for acetanilide is superfluous; it has been found faulty and misleading by various analysts. The test for para-phenetidin may fail to show presence of traces of this unless a control test is made with a sample of known purity and the resulting colors compared. The delicacy of the test may be increased by boiling 1 gm. of acetphenetidin, 3 cc. of

*Analytical Laboratory of Powers-Weightman-Rosengarten Company.

alcohol, and 10 cc. of water with one drop of n/10 iodine, when the rose tint produced by minute traces of paraphenetidin will be brought out more distinctly. Pure acetphenetidin has a slightly bitter taste; the U. S. P. and other authorities state that it is tasteless.

ACIDUM ACETICUM.—If non-volatile matter is determined after supersaturation with ammonia water, as officially directed, allowance should be made for non-volatile impurities in the latter, as they are always present to some extent in ammonia that has been kept in glass containers. It seems preferable to evaporate the acid without previous neutralization. The accuracy of the permanganate test can be increased by measuring the reagent from a 1 cc. pipette instead of dropping it, assuming a drop to be equal to 0.05 cc., also by at least doubling all the quantities. Arsenic is considered by various authorities a probable impurity; it may be detected by the official Gutzeit test.

ACIDUM ACETICUM DILITUM.—Diluted acids are required (see *"Introductory Notices"* of the U. S. P., p. LVII) to be brought to the strength of the stronger acid before application of the tests given for the stronger acid, or a proportionately larger quantity of the weaker is to be taken for each test. The acid is too weak for direct application of the test for formic and sulphurous acids and concentration before testing is likely to eliminate these volatile impurities, therefore it seems best to supersaturate it with a fixed alkali, then evaporate to the required volume, before making the test.

ACIDUM ACETICUM GLACIALE.—A boiling point determination is not necessary to establish purity and strength. A congealing point determination gives the strength of acids above 95 per cent. at least as accurately as a titration, in shorter time and with less labor. According to Ruedorf, acetic acid containing 0.98 per cent. of water congeals at 14.8°; that containing 0.497 per cent., at 15.65°; the absolute acid at 16.7°. The titration is more conveniently made with 2 to 2.5 cc. of the acid, as 3 cc. require more than 50 cc. of normal alkali.

ACIDUM BENZOICUM.—While the U. S. P. includes both the synthetic and the natural acid in its descriptions and tests, these do not distinguish one from the other, except in the statement that the acid sublimed from benzoin is more soluble in water and has a lower melting point than that made by *toluol*. But, as will be shown later, this is not a satisfactory means of differentiation, while those who purchase natural acid at a cost three times that of the synthetic, are entitled to what they pay for. In chemical literature no method is to be found that will afford a sure means of detecting adulteration or substitution, but if it can safely be assumed, what is generally conceded to be true, that natural benzoic acid never contains chlorine in organic combination, this fact can be utilized, since no artificial acid free from chlorobenzoic acid has, up to the present time, been placed on the market at a cost low enough to make substitution and adulteration worth while. If, then, no chlorine is found in a sample when tested by the official method, with chlorine-free calcium carbonate, it may be considered that its source was benzoin, solely, natural acid made from hippuric acid no longer being an article of commerce. Unfortunately the natural acid of the market nearly always contains traces of hydrochloric acid or metallic chlorides, and this fact has heretofore been considered to bar this means of differentiation. Simple as it seems,

the writer has not been able to find, in the literature treating of this subject, the suggestion to test for *organic* chlorine in presence of the *inorganic* chlorine. This may be done by quantitative determinations of total chlorine and of inorganic chlorine in separate portions of a sample. About 5 gm. or more, after conversion into the calcium salt with an excess of pure calcium carbonate and a little water, should be charred in a platinum dish at a low red heat, the residue extracted with boiling water, dried, and incinerated at a low temperature. The ash should also be extracted with boiling water. The total chlorine may then be determined in the combined filtered solutions, preferably by Volhard's method. Another portion of the sample may be dissolved in weak ammonia water (free from chloride), nitric acid added until no further precipitation takes place, and inorganic chlorine determined in the filtrate by the same method. The second result subtracted from the first, gives the organic chlorine, of which synthetic benzoic acid usually contains 0.05 per cent. or more. If the two results are the same, organic chlorine is absent, and the sample may be considered free from adulteration with synthetic acid. For accurate determinations Volhard's method requires that the silver chloride be removed by filtration before titrating the excess of silver and where such small quantities of chlorine are involved, it is important that the n/10 silver nitrate should not be more than 0.2 cc. in excess, according to A. T. Stuart (Jour. Am. Chem. Soc., 1911, v. 33, p. 1344). Benzoic acid from benzoin, as now found on the market, contains less of its characteristic impurities than formerly and sometimes scarcely differs in solubility and melting point from the artificial acid. The principal difference between the best grades of the two kinds, in addition to those already mentioned, are as follows: The synthetic acid is white, in thin, lustrous scales, and has an odor of benzaldehyde; the natural acid is yellowish-white, in small, friable acicular crystals, and has an odor of benzoin, quite different from that of benzaldehyde. A solution of about 0.5 gm. of the first in 10 cc. of sulphuric acid should not be darker than yellow at 50°; the second may produce a light brown solution under similar conditions. Both kinds should not contain more than 0.05 per cent. of non-volatile matter.

ACIDUM BORICUM.—In the identity test with turmeric paper, ammonia changes the color to greenish-black, not bluish-black, as stated. The test for arsenic, as now given, permits presence of at least 20 parts per million, which seems rather too much, when it is considered that many other substances, given in smaller doses, are limited to 10 parts per million. Glycerin used for the titration should be neutralized, as otherwise the result will be a little too high. All available glycerin has an acid reaction. The quantity of boric acid directed for the titration is hardly sufficient for accurate work; about 2.5 gm. would be preferable, but care should be taken that the liquid contains at least 30 per cent. of glycerin at the end of the titration, which, according to R. T. Thompson, is necessary for correct results. It may be said, however, that a titration is not necessary to determine the purity of boric acid. If it stands the other U. S. P. tests, it cannot well contain more than 0.2 per cent. of impurities.

ACIDUM CAMPHORICUM.—It should not yield more than 0.05 per cent. of residue on incineration. The melting point has been found to vary from 183° to 187°. The Brit. Pharm. Codex considers 180° the lowest that may be permitted.

ACIDUM CITRICUM.—The U. S. P. gives no tests for tartaric and oxalic acids, unless the lime water identity test be so considered. A test for tartaric acid used by a number of foreign pharmacopœias and which has been found satisfactory, is made by mixing about 0.5 gm. of the acid with 5 cc. of sulphuric acid in a porcelain dish and heating for 15 minutes on a water-bath, protecting the contents of the dish from dust meanwhile. No color darker than yellow should develop. In presence of tartaric acid the liquid becomes brown to black. Oxalic acid is best detected by the test given in the U. S. P. for oxalic in tartaric acid. Arsenic is recognized as a probable impurity by several foreign pharmacopœias. Excessive amounts can be detected by the official Gutzeit test.

ACIDUM GALLICUM.—It is not soluble in 40 parts of ether, as stated in the U. S. P. and various other authorities. A. Seidell found it soluble in 72 parts of absolute ether at 25°. A limit of 0.1 per cent. of ash must be permitted. A melting point determination is useless as a test of purity, owing to decomposition near the melting temperature.

ACIDUM HYDRIODICUM DILUTUM.—The specific gravity in the U. S. P. applies only to products made by the official method, containing a large amount of potassium bitartrate. A purer acid of the same strength has a considerably lower specific gravity. For the titration with silver nitrate, the acid should be diluted with at least twice as much water as is directed, to prevent reduction of silver by the hypophosphite present. A glass-stoppered flask should be used. No test is provided for hydrochloric and hydrobromic acids, which may be fraudulently added. For their detection a test may be based on the same principle as is used in the U. S. P. test for hydrochloric in hydrobromic acid, substituting ammonia water for ammonium carbonate. The presence of traces of hydrochloric acid, however, cannot always be avoided in a carefully made product.

ACIDUM HYDROBROMICUM DILUTUM.—The requirement that no "appreciable" residue should remain after evaporation of 10 cc., is subject to differences of interpretation; a well made product should not leave more than 0.01 per cent. A treatment with sulphurous and sulphuric acids, as a preparation for the test for arsenic is neither necessary nor desirable, as the arsenic is likely to be volatilized in the process. Volhard's method is more convenient than Mohr's for an assay and just as accurate.

ACIDUM HYDROCHLORICUM.—It should not contain more than 0.01 per cent. of non-volatile matter. The preliminary treatment for the arsenic test should be omitted, as the arsenic would be volatilized as arsenous chloride. The U. S. P. test for free chlorine is not conclusive, as ferric chloride, present in permissible quantity, may liberate iodine under the conditions of the test.

ACIDUM HYDROCYANICUM.—It is not "completely" volatilized by heat, but should not leave more than 0.01 per cent. of residue.

Acidum Hypophosphorosum.—Products containing much oxalic acid and calcium oxalate have been found in this market during recent years by E. L. Patch, E. H. Gane, and others. The U. S. P. has no test for this dangerous contamination, the entire absence of which should be demanded. The detection of oxalates may be slightly complicated by the presence of phosphoric, phosphorous, sulphuric, or tartaric acid; a precipitate obtained by the addition of calcium chloride

and an excess of ammonia may consist of the calcium salts of any of these, but if this be found readily soluble in acetic acid, absence of oxalic acid may be assumed; any portion of it not readily soluble should be further examined according to the rules given in any text book on Qualitative Analysis. The official test for a limit of barium, another unnecessary and dangerous impurity, is inadequate, since phosphoric acid, which is always necessarily present to some extent, precipitates barium phosphate, when an excess of ammonia is added. This is then filtered out, before the test for barium is made in the filtrate. As a substitute test the writer recommends that any precipitate, formed when the acid is nearly neutralized with ammonia water, potassium sulphate added, and the mixture allowed to stand several hours, should be required to be completely soluble in diluted hydrochloric acid, to show *absence* of barium.

Acidum Lacticum.—As has been pointed out in the journals by several authors, the concentrated acid of the market is a mixture of lactic acid and several lactic anhydrides. An acid having the specific gravity given by the U. S. P. contains from 72 to 75 per cent. of lactic acid and about 15 per cent. of anhydrides, which are convertible into lactic acid by contact with alkali or, more slowly and incompletely, by dilution with water. It is officially described as being colorless, but market products always have a slight yellowish tint. The ash limit is placed at 1 per cent., but products of good quality now do not yield more than 0.1 per cent. The official test for glycerin is unsatisfactory, because zinc lactate is taken up by alcohol together with any glycerin present and the taste of small quantities of the latter is masked thereby. The following test is used by various pharmacopœias and has been found more satisfactory: The concentrated acid is added drop by drop to ether of U. S. P. strength and the mixture shaken after addition of each drop. Neither a transient nor a permanent turbidity should result. When the acid contains about 2 per cent. of glycerin, a turbidity is produced after the addition of a few drops to 5 cc. of ether. When the addition of acid is continued, the turbidity finally disappears. Smaller quantities of glycerin can be detected when absolute ether is used. The U. S. P. gives no test for detection of additions such as tartaric, citric, oxalic, and phosphoric acids. A test given by most foreign pharmacopœias consists in heating the acid with an excess of lime water. No turbidity should be produced. Cold titration with alkali and phenolphthalein gives the actual lactic acid together with a small amount of anhydride, which is hydrated during the titration. Subsequent heating with an excess of alkali gives the remainder of anhydride. The assay may be carried out conveniently as follows: About 5 gm. of the sample are weighed in a stoppered weighing bottle, diluted with 50 cc. of water, and titrated with n/1 alkali until the entire solution becomes *momentarily* pink after mixing. The result is calculated as lactic acid. The solution is then heated for half an hour with 25 cc. more of n/1 alkali on a water-bath, cooled, and the excess of alkali determined with n/1 acid. The alkali consumed in the second titration represents the anhydrides, which are calculated in terms of lactic acid, for convenience. (See also E. Elvove, *Am. Jour. Phar.*, 1911, v. 83, p. 14.)

Acidum Nitricum.—It should not contain more than 0.01 per cent. of non-volatile matter. A test for arsenic is unnecessary, as this is very improbable as an impurity; no other recognized authority gives a test for it. The official test, if

considered necessary, should be modified by evaporating the acid to dryness on a water-bath before the treatment with sulphuric and sulphurous acids. The official test for sulphuric acid does not prove "absence," but merely defines a limit.

Acidum Oleicum.—The specific gravity of products of U. S. P. standard may vary from 0.890 to 0.896 at 25°. It should not leave more than 0.1 per cent. of residue on incineration. The alcohol test for fixed oils has been shown by J. F. Woolsey and C. H. Ballinger to be incapable of detecting an admixture of 50 per cent. The official test for "undecomposed fat" in stearic acid can be recommended as a satisfactory substitute. It also shows presence of hydrocarbon oils. The lead test for limits of stearic and palmitic acids is too stringent for a product made by the official directions and is also defective in other respects. Since the limits of these acids are fixed by the congealing point, this test is superfluous. A test for free mineral acids, which may be present when the older methods of manufacture are used, might well be added. If the acid be shaken with an equal volume of water, the separated water should not be acid to methyl orange. Determinations of acid, saponification, and iodine values have been recommended, but seem unnecessary.

Acidum Phosphoricum.—While the U. S. P. allows 10 parts of arsenic per million, products containing less than half this amount are now readily obtained. The U. S. P. table of specific gravities and percentages has been found somewhat inaccurate and should not be relied upon for precise adjustments of strength. The official method of titration, as modified in 1907, has been found by J. Rosin to give results agreeing within 0.2 per cent. with the results obtained by gravimetric determination as magnesium pyrophosphate. It is necessary to adhere closely to the prescribed details regarding the ratio of sodium chloride and water to phosphoric acid for accurate results.

Acidum Salicylicum.—The natural acid of the market usually has a slight yellowish or pinkish tint and a slight odor, but the synthetic acid should be white and odorless. A melting interval of 156° to 157° is too narrow for the available product. G. A. Menge found the corrected melting intervals of 5 market samples to range from 157.5° to 158.9°. Natural acid, as found in commerce, is likely to give somewhat lower figures. An allowance of 0.6 per cent. of inorganic impurities is unnecessarily liberal; not more than 0.1 per cent. should be present. In the test for coloring matter a slight yellowish or pinkish tint must be allowed in the case of natural acid. All obtainable synthetic acid gives a yellow solution in sulphuric acid, when tested as officially directed; natural acid may produce a light brownish solution.

Acidum Stearicum.—The U. S. P. test for "undecomposed fat" also serves as a test for paraffin, which obviates the need of determining the acid or iodine value for detecting such admixture. Absence of free mineral acid may be established by shaking the melted acid with an equal volume of water, cooling, and testing the separated water with methyl orange.

Acidum Sulphuricum.—It should not contain more than 0.01 per cent. of non-volatile matter. When the acid is neutralized with ammonia water before volatilizing, as officially directed, the non-volatile matter derived from this should be deducted. It is preferable to evaporate without previous neutralization when a

hood having good draught is at hand. The quantity directed for titration is entirely too much; not much more than 1 cc. of concentrated acid should be taken.

Acidum Sulphuricum Aromaticum.—The time required for hydrolysis of the ethylsulphuric acid can be greatly shortened by heating with an excess of N/1 alkali.

Acidum Sulphurosum.—It is advisable to weigh the acid in a glass-stoppered flask large enough for the titration and containing enough water to prevent loss of sulphur dioxide by volatilization.

Acidum Tartaricum.—Arsenic is considered to be a possible contamination by some authorities. The U. S. P. Gutzeit test may be used for detecting excessive quantities.

Acidum Trichloraceticum.—The melting point may be expected to vary from the official figures (52°); the German Pharmacopœia gives 55°, the Swiss 56°. As this acid is extremely hygroscopic, a melting point determination with any degree of accuracy is impracticable. It should not leave more than 0.05 per cent. of residue on volatilization. The ferric chloride identity test should be omitted, as the pure acid gives no color. In addition to the U. S. P. tests, the ferrous sulphate test, made in the usual way, should not give a reaction for nitric acid and silver nitrate should show not more than slight traces of hydrochloric acid.

(To be continued.)

LISTER AND LISTERISM.

A man who leaves his name in his native language as the description of an art which has saved millions of lives in his lifetime is rare in human history, and such a man was Joseph Lister, the discoverer of the antiseptic system of treatment in surgery. He was the son of Joseph Jackson Lister, F. R. S., a distinguished microscopist and a member of the Society of Friends. His birthplace was Upton in Essex, and after his elementary education at Friends' schools he completed his classical and mathematical studies at University College, London, graduating as B. A. Lond. in 1847. He continued at the college as a medical student, and became M. B. Lond. and F. R. C. S. Eng. in 1852. After a short period at University College Hospital as a resident surgeon he visited Edinburgh, taking with him a letter from Professor Sharpey, then of world-wide reputation, to Professor Syme, who held the Surgery chair in the Edinburgh University, and the visit became a sojourn in Scotland of about a quarter of a century, during which he had discovered and perfected the antiseptic system of surgical treatment, filled the chairs of Surgery in Glasgow University (1860-69) and in Edinburgh University (1869-77), and became known throughout the civilized world as a distinguished surgeon and one of the greatest benefactors to humanity. In 1856 he married Agnes, the daughter of Professor Syme, and became an extra-mural lecturer in surgery of the Edinburgh Medical School, which he retained until his appointment to the Glasgow chair. He was a chemist and histologist of no mean ability, and was quick to appreciate the significance of Pasteur's work on fermentation, which led to the observation that that process and putrefaction are the result of micro-organisms living upon the organic matter which ferments or putrefies. Hitherto

the processes were regarded as chemical changes, inevitable as effervescence when a carbonate and an acid are mixed. It was Lister who linked together Pasteur's researches on fermentation that had gone wrong owing to foreign germs, with the "surgical fever," which at that time was the scourge of hospitals, and he patiently experimented until he proved that by the application of germicidal protection to wounds they healed "by first intention" far more frequently than by the old and recognized methods. His discovery was announced in 1865, but several years elapsed before there was much recognition of the value of his discovery—the methods were crude and the antiseptic preparations clumsy and complicated. Lister applied himself to the improvement of methods and preparations, pharmacists in Glasgow and Edinburgh helping him. In 1869 he succeeded his father-in-law in the Edinburgh chair, and then the antiseptic treatment began to be better appreciated, while graduates from Edinburgh carried the *rationale* of the treatment to all parts of the world. As it came to be more commonly used, Lister had helpers in its improvement, not the poorest helpers being the critics. We need not elaborate the progress of Listerism; today it means the performance of surgical operations under germless or aseptic conditions, and it means for the human race successful surgical treatment of diseases which were invariably fatal forty years ago, because of the putrefaction which followed the surgeon's knife. Lister was called to King's College, London, in 1877, and remained there until 1893 as Professor of Clinical Surgery, meanwhile having a lucrative practice as a consultant. He had many academic and scientific honors, became a Baronet in 1883, and a Baron of the United Kingdom in 1897, the latter honor being for the first time conferred on a medical practitioner, and he was one of the first to receive the Order of Merit from King Edward VII., whom he had attended when he was operated upon for appendicitis by Sir Frederick Treves. He influenced pharmacy in so far as Listerism has called for new chemical and galenical preparations. This ancient class of preparations was changed by Lister calling for a protective basis which he found in the paraffins. The demand for antiseptic dressings has created a new pharmaceutical industry, and Lord Lister was as interested in these minor developments of his discoveries as he was in the operative side. His election in 1893 as an honorary member of the Pharmaceutical Society of Great Britain was a tribute not only to his fame as a surgeon, but his accomplishments in chemical research. He was a frequent guest of the Society during his active years, and it is well when the world pays tribute to his life's work that we pharmacists should remember that pharmacists worked with him in his discovery, and that he was the first to acknowledge their services to him.—*Chemist and Druggist* (London).

THE NEAR-SIGHTEDNESS OF THE CYNIC.

"Happiness is the voice of optimism, of faith, of simple steadfast love. No cynic or pessimist can be really happy. A cynic is a man who is morally near-sighted—and brags about it. He sees the evil in his own heart, and thinks he sees the world. He lets a mote in his eye eclipse the sun. An incurable cynic is an individual who should long for death—for life cannot bring him happiness, and death might. The keynote of Bismarck's lack of happiness was his profound distrust of human nature."—*William George Jordan.*

Papers Presented to Local Branches

THE OFFICIAL TESTS FOR CREOSOTE.

JOSEPH W. ENGLAND.*

The tests of the U. S. Pharmacopœia (VIII) for Creosote are indefinite and unsatisfactory.

The therapeutically active ingredients are chiefly the ethers guaiacol (b.p. 200° C.) and creosol (b.p. 219° C.) with the alcohols phenol (b.p. 182° C. B. P.), paracreosol (b.p. 203° C.), dimethyl-guaiacol (b.p. 230° C.) and propyl-guaiacol (b.p. 241° C.), (Food and Drugs, E. J. Parry, 1911, 454). Guaiacol and creosol are closely related, chemically, the former being methyl catecholate (C_6H_4 (OCH_3OH)), and the latter, methyl homocatecholate ($C_6H_3CH_3$ (OCH_3OH)).

Allen states (Commercial Organic Analysis, A. H. Allen (1900), Vol. II, Part II, 279) that "Phenol is present in genuine wood-tar creosote in very small quantity, the creosols in somewhat larger, and the xylenols in sensible proportions; but the two chief constituents are guaiacol and creosol. In Rhenish creosote, guaiacol predominates, but a sample of Morson's creosote from 'Stockholm tar,' examined by the author, boiled at 217° C., and consisted chefly of creosol." He writes (p. 285), that the range of boiling point from 200 to 220° C. "admits creosol to an equality with guaiacol as a legitimate and valuable constituent of creosote, which would appear to be justifiable both from analogy and from what is positively known of the therapeutic action of creosol."

There are considerable differences of opinion regarding the percentage of guaiacol in creosote. Some years ago it was believed to be 60 per cent. or more, but if this ever was the case, there has been a marked reduction in recent years.

Thus, Behal and Choay, in 1894 (Compt. rend. 119, 116; Abst. J. S. C. 1, 1894, 1087, 1187), obtained from beechwood creosote (two samples), *respectively*, 39 and 39 per cent. of monophenols, 19.7 and 26.5 per cent. of guaiacol, and 40 and 32.1 per cent. of creosols and homologues.

In 1899, Kebler (Amer. Journ. Pharm. 1899, 409) found the proportion of guaiacol in commercial wood creosote to range from *nil* to 16 per cent.

In 1900, Allen wrote (p. 283) "in consequence of the large demand of recent years for guaiacol and its preparations, much of the wood creosote now sold has been deprived of its guaiacol, so that it is now rare to find specimens containing even 20 per cent. of that constituent," and Parry (Foods and Drugs, 1911, 455) states that "guaiacol is present to the extent of about 15 to 25 per cent."

The chief tests of the Pharmacopœia (VIII) for Creosote are the gravity (s.g. (corrected) 1.078 at 25° C.), and the boiling point ("when distilled most of it comes over between 200 and 220° C.").

*Read before the Scientific Section of the Philadelphia Branch.

While guaiacol boils at 200 to 205° C., creosol at 219° C. and the monophenols at less than 200° C. (the boiling point of phenol is 182° C. (B. P.)—188° C. (U. S. P.)), it is apparently possible (1) to distill off the low-boiling phenols and reserve, (2) to distill off all or a part of the guaiacol and (3) to add the reserved low-boiling monophenols to the high-boiling creosol and obtain a product that will comport with the U. S. P. standards.

In this way creosote can be deguaiacolized, and a product worth about $2.40 a pound can be obtained from one worth about 75 cents a pound, and the residue can be sold for creosote at 75 cents.

The Pharmacopœia seeks to prevent such a practice by requiring that when creosote is distilled "most of it" (a most indefinite statement) comes over between 200 and 220° C., evidently assuming that if the product contains much phenol it will boil at a lower boiling point than 200° C. As a matter of fact, this is not the case. Kebler has shown (Amer. Journ. Pharm., 1899, 410) that the fraction of creosote coming over between 200 and 210° C. may contain a goodly per cent. of phenol having a boiling point of 20° below the lowest boiling point, and the same fraction may contain more than one-third its weight of creosol, a body having the boiling point of 219° C.

Experiments made by H. M. Sechler in the Analytical Laboratory of the Smith, Kline & French Company, show that when phenol is added to creosote or guaiacol, the mixture does not boil at 188° C. (the boiling point of phenol is "not higher than 188° C."), but a number of degrees higher, depending upon the percentage added. Doubtless some of the lower-boiling liquid is vaporized by the heat, but the boiling point of the mixture is higher than that of the lower-boiling liquid added.

The results obtained were:

Creosote B. P.		208.5° C.
Phenol B. P.		188 ° C.
Creosote 75% / Phenol 25%	B. P.	198.5° C.
Guaiacol B. P.		204.5° C.
Guaiacol 75% / Phenol 25%	B. P.	197.5° C.

Five samples of Creosote marketed by American manufacturers and guaranteed under the Food and Drugs Act, have been examined by M. Becker in the Analytical Laboratory of Smith, Kline & French Co. The percentages of distillate obtained were by volume. The specific gravity of each sample at 25° C. was 1.080.

No. 1 vaporized at 198° C. and gave 8 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 80 per cent., and between 200 and 220° C., 84 per cent.

No. 2 vaporized at 198° C. and gave 28 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 60 per cent., and between 200 and 220° C., 64 per cent.

No. 3 vaporized at 195° C. and gave 36 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 58 per cent., and between 200 and 220° C., 62 per cent.

No. 4 vaporized at 197° C. and gave 24 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 64 per cent., and between 200 and 220° C., 68 per cent.

No. 5 vaporized at 198° C. and gave 8 per cent. of distillate below 200° C.; between 200 and 215° C. it yielded 80 per cent., and between 200 and 220° C., 84 per cent.

A sample of Morson's English creosote was examined, also, and found to have the specific gravity of 1.083 at 25° C. It vaporized at 203° C. and gave 80 per cent. of distillate between 203° and 215° C., and 94 per cent. between 203° and 220° C.

Parry (Food and Drugs, 1911, 455) claims that "a good creosote should have a specific gravity of at least that required by the British Pharmacopœia, preferably a little higher—up to 1.085. 1.085 at 15.5° C. (B. P. temperature; about equals 1.079 at 25° C., U. S. P. temperature, J. W. E.) On fractionation, three typical samples gave the following results with which pure samples will approximately correspond":

	Sp. Gr.	Guaiacol Percent	Under 200° C Percent	200-205° C Percent	205-210°C Percent	210-215°C Percent	215-220°C Percem
1	1.0815	21.5	6	39	22	25	6
2	1.0820	19.8	7.5	40	20	23	7
3	1.0800	23	5	35	24	22	10

Parry's experiments show that from 81 to 86 per cent. of English creosote distils between 200 and 215° C., and 6 to 10 per cent. between 215 and 220° C.; or 90 to 92 per cent. between 200 and 220° C.

Pure guaiacol was formerly described as a liquid, but has been obtained by Behal and Choay (Comp. rend. 116 (1893) 197) as a white solid liquefying at 28.5° to 33° C.

The specific gravity of liquid guaiacol at 15° C. is from 1.143 to 1.149 (Commercial Organic Analysis, Allen, Vol. II, Part II, 273).

The specific gravity of creosol at 13° C. is 1.0894 (Watt's Dictionary of Chemistry, 1894, 271).

The specific gravity of the phenols of creosote is probably much lower than that of guaiacol or creosol.

Creosote varies greatly in its percentages of guaiacol, creosol and monophenols. In therapeutic properties, it is analogous to phenol, being antiseptic, anesthetic and antipyretic, but it is believed to be more powerful in action. Creosote depends for its activity not only upon its guaiacol and creosol, which together are present in the larger proportions, but also, upon its monophenols, which Behal and Choay (previously quoted) found to the extent of 39 per cent., these (in creosote) distilling between 200 and 220° C.

Since "Creosote is more efficient than either of its principal constituents, guaiacol or creosol, even if given in proportionate dose" (Pharmacology and Therapeutics, Reynold Webb Wilcox, 1905, 598), its activity can *not* depend upon guaiacol or creosol, or both; it must depend also upon its monophenols. While guaiacol resembles creosote in its general action, it is much more powerful in reducing temperature and much less active as a germicide (U. S. D. 19 Edt., 603).

Hence, it would appear that the guaiacol-content or the creosol-content of cre-

osote, or both, are not indicative of therapeutic strength, and that the best procedure, apparently, for the Pharmacopœia, would be to eliminate the phrase "most of it" in the paragraph "when distilled most of it comes over between 200 and 220° C." and to require that, when distilled between 200 and 220° C., *a certain specified percentage of distillate (by volume) shall be obtained,* probably between 80 and 90 per cent., as indicated by the experiments of Parry and Becker.

It might be desirable, also, to raise the official specific gravity of creosote slightly, so as to ensure the presence of more guaiacol. The higher the gravity the greater the percentage of guaiacol, since guaiacol has the highest gravity of the several principles of creosote. The U. S. P. (VIII) gravity (corrected) of 1.078 at 25° C. is about 1.085 at 15.5° C. (the B. P. standard is not below 1.079) and this is lower than the gravity of either guaiacol (1.143-1.149 at 15° C.) or creosol (1.0894 at 13° C.). As has been shown (Am. Journ. Pharm., L. F. Kebler, 1899, 411), a gravity of 1.070 at 15° C. can be easily met by a creosote that does not contain any guaiacol. Parry recommends a gravity of 1.085 at 15.5° C. or about 1.079 at 25° C., which latter is practically the same as the present (corrected) U. S. P. gravity of 1.078 at 25° C.

ADULTERATION OF DRUGS.*

ROBERT S. HILTNER, CHIEF OF U. S. FOOD AND DRUG INSPECTION LABORATORY AT DENVER.

The Food and Drugs Act of June 30, 1906, was enacted primarily for the purpose of preventing the manufacture, sale or transportation of adulterated, or misbranded, or poisonous, or deleterious foods, drugs, medicines and liquors. I would emphasize the words *adulterated, poisonous* and *deleterious drugs,* as they are in line with what I have to say this evening and because they have an important bearing on the other topics on the program, viz., the "Richardson amendment."

The Food and Drugs Act includes under the term *drug* all medicines and preparations recognized in the United States Pharmacopœia and National Formulary, for internal and external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease, of either man or other animals. This little word *drug* with its four letters is fraught with a mighty meaning. By the provisions of this law it embraces within its scope not only all the products enumerated in the U. S. P. and the National Formulary, which your association publishes, but every substance described in the most comprehensive dispensatory or dictionary of medicine, every true patent medicine and every popularly so-called *patent medicine,* every nostrum; all manner of "dope" if you please. Indeed it seems that we may catalogue here almost everything mineral and vegetable, and some animal, that God has created and that man, aided and abetted at times by the devil, has devised or fabricated. The surf and weeds of

*Read before the Denver Branch.

the beach, the metals of the mountains, the chalk and clay of the plains, the weeds and flowers of the fields; bugs that crawl, insects that sting, beetles that bite; all have been offered to poor, sick, suffering humanity, and the lower orders of fauna, to alleviate their ills, and all come within the provisions of the Food and Drugs Act. Medicines for the horse, cow, the chickens, the cat and the dog, are subject to the same legal requirements as those for man. It is appalling what a vast list of substances falls within this category.

There are described in the National Dispensatory approximately 5000 substances that are used or have been tried as medicines! This does not include any of the bottled and boxed "remedies," "cures," "balms" that infest every drug store. A brave man he would be who would undertake to count this class of material. It has been estimated that there are at present on the market in the United States no less than 50,000 different kinds of drug products, proprietary and other kinds. Think of it! Fifty thousand varieties! Fifty-seven varieties of pickles hardly make a ripple in comparison. Out of this vast number only about 1500 are described in the United States Pharmacopœia and National Formulary.

The little word "food," with the same number of letters as in drug, is not nearly so expansible. There are comparatively few kinds of natural substances that are fit to eat, and the number of edible products manufactured from them are fewer still. This is fortunate for us, for we all know that the closer we keep to Nature's foods the better we are nourished and, incidentally, the cheaper. It is reported that a group of chemists in one of our technical schools is seriously attempting to manufacture foods from petroleum. Let us pray that they may be unsuccessful! We've been abused enough by coal tar, let's not insult our stomachs by providing paraffin steaks or hydrocarbon jelly, no matter how artfully masked by the magic of chemistry they may be. Let us rather encourage these chemists to till the soil and feed us bread.

We sometimes think we have an oversupply of brands of breakfast foods on the market, but they are like Gideon's band compared with the whole Philistine army of headache cures or rheumatism remedies.

Speaking of breakfast foods and drugs, it seems whenever a numbskull with a fat pocketbook concocts a breakfast food and burns and frazzles it, or loads it with husks or hulls so it isn't fit to eat, he brands it as a medicinal agent, claims that it nourishes the brain, soothes jaded nerves, cures constipation, etc., and then, with the aid of a cunning advertising agent, he proceeds to wax opulent. I am not far from the truth when I say that whatever in nature is not fit for food is, or has been, classed as a drug. There is surely food for reflection in this.

I have enlarged on this matter of the scope of the term drug in order to emphasize what a colossal task is before those of us who are charged with the enforcement of the Food and Drugs Act. It will take time and money and brains and courage, lots of each, to carry out the intent of the Congress and the wishes of the people in this regard. To enforce the law in respect to drugs will require more courage, more money and a higher order of chemical knowledge than in respect of foods, because of the relative difficulties of the problems involved. The analysis of foods is by no means an easy task, but the examination and analysis of drugs, simple or mixed, are usually more complex and difficult, for reasons that are obvious. And yet there are those who criticize the Chief of the Bureau of

Chemistry for the employment of a Rusby at $20.00 a day or a Kebler at a salary that is but little beyond the cost of living at the present day.

But coming to the subject of this paper—What is it that constitutes adulteration of drugs? To what extent and in what manner is it practiced at the present time? According to Section 7 of the Food and Drugs Act, a drug is regarded as adulterated, first, if when sold under or by a name recognized in the United States Pharmacopœia or National Formulary, it differs from the standard strength, quality or purity, as determined by the test prescribed in those standard texts. This fundamental principle is qualified or modified by the provision that no such "official" drug shall be deemed adulterated if the standard of strength, quality or purity be plainly stated on the label, although the quality may differ from the official standard. In the second place, a drug is held to be adulterated if its quality, strength or purity fall below the professed standard or quality under which it is sold.

It is plain that these two clauses of the law defining adulteration affect only a small proportion of the vast number of drugs and medicines that have just been mentioned. In fact, broadly speaking, the crude and refined natural drugs and the manufactured, synthetized chemical compounds used in medicines, together with the simple extracts, tinctures and solutions of them, are the only classes of drugs clearly affected by these provisions. To the remaining tens of thousands of legally defined drugs, proprietary medicines, "patents," etc., the law does not apply as to adulteration, but only in regard to branding.

Although the stated purpose of the act is to prevent the manufacture and sale of adulterated, or misbranded, or poisonous, or deleterious foods, drugs and medicines it is obviously anomalous to attempt to restrict traffic in poisonous or deleterious *drugs* and *medicines*. A very large proportion of the known drugs are poisonous and hence would be deleterious. Many of them are potent, virulent poisons. Drugs stripped of their poisonous ingredients in many cases would be adulterated within the meaning of the law. When one speaks of a *deleterious medicine*, he should immediately qualify his remarks to clear up the antithesis. In fact, the statement that any substance is deleterious should always be made guardedly, owing to the range of tolerances of the human system and the idiosyncrasies of individuals. For instance, we may say that acetanilide is deleterious, but one person may consume a whole case of "Bromo Seltzer" without turning blue, while another may show the symptoms of acetanilide poisoning by merely looking at the stuff through the bottle. Lord Byron said:

> " 'Tis pity wine should be so deleterious,
> For tea and coffee leave us much more serious."

When sifted, therefore, the Food and Drugs Act aims to prevent traffic in adulterated and misbranded drugs. This aim is high enough. I have no doubt that each of you gentlemen has observed time and again the beneficent effect of the law and has noted the improvement in the quality of drugs, especially the crude drugs, sold to you.

In the drug markets of the world there are today, as there have been since the beginning of pharmacy, two classes of merchandise, the genuine and the adulter-

ated. How closely the Century Dictionary definition of "drug" differentiates between these two classes, viz:

"(1) Any vegetable, animal or mineral substance used in the composition or preparation of medicines.

"(2) A thing which has lost its value and is no longer wanted; specifically, a commodity that is not salable, especially from overproduction, as a *drug* in the market."

A genuine, pure drug is a thing worth while; a trusty weapon in the hands of the physician and a boon to the sick. But a drug that isn't a drug, the thing that has lost its value, its potent principles, should find no place in the pharmacist's stock. Adulterating food is bad enough, but the adulteration of drugs is so infamous that inquisitorial punishment is none too severe for him who stoops to practice it. In about the proportion that the number of those in good health is vastly greater than those in sickness, the adulteration of food affects almost entirely the healthy. The sophistication of drugs, however, reaches those utterly unable to help themselves. Life itself may depend, as it often does, upon the purity and strength of the medicine administered. The suppression of frauds of this sort is work that one may well feel proud to be engaged in.

Thank goodness, there is not nearly so much of the adulterating business going on as formerly, but enough to make it necessary to keep our eyes open and other senses alert. Among the 1250 Notices of Judgment in food and drug cases, as published by the Secretary of Agriculture, covering a period of five years, 309 have to do with drug products. In most of these cases, technical charges of misbranding are brought, such as failure to declare the amount of the prescribed drug, like alcohol, acetanilide, etc., false therapeutic claims and the like. In only fifty-five of the cases could charges of adulteration be made. This is bad enough, to be sure, but it does show, to my mind, a wholesome condition of the American drug market. The explanation of this remarkable state of affairs, I believe, is to be found in the manner of enforcement of Section 11 of the Food and Drugs Act, pertaining to the inspection of imported foods and drugs. You are all aware that most of the crude drugs, the raw materials for medicines, are not home-grown (as many of them could and should be), but are imported from Europe and the other three corners of the earth. Mountainous piles of herbs and roots, barks and leaves, flowers and seeds, oils and gums, resins and waxes, crude drugs all, are unloaded daily on the wharves of New York. Smaller mountainous piles come in bond by rail to Chicago, while other smaller ports receive their proportionate shares. At each of these places are stationed men, employees of the Bureau of Chemistry, whose duty it is to inspect every invoice of drug products and determine whether the material is fit to enter into the commerce of the country. That which is unfit is either destroyed or deported, or else it is purified before being released by the custom officers. The Department of Agriculture employees coöperate with the customs authorities in the enforcement of this section of the law. At New York, where the major portion of the drug imports are entered, Dr. H. H. Rusby holds forth as expert pharmacognosist, and Dr. Seil as pharmaceutical chemist. He is a clever smuggler indeed who can escape these two men and succeed in entering spurious or adulterated drugs. The reports of the findings of these drug laboratories make interesting reading, and show the trend of the

practice of drug adulteration. I have noted here a few of the more striking cases of adulteration that may be of interest to you:

Belladonna and henbane leaves, aloes, jalap, sage, cubebs, ergot, hydrogen dioxide, calcined magnesia, and many others have been found to differ widely from U. S. P. requirements.

Some of the most serious forms of adulteration and substitution are as follows:

Codeine, morphine and aspirin in the form of pastilles and confections, condemned as being dangerous to health. Digitalis leaves, decayed; cumin seed, broken and full of dust; gum tragacanth, mixed with other gums, dirt and foreign matter, all unfit for medicinal use; iron by hydrogen, containing an excess of arsenic; oil of cajuput, with copper; oil of cassia, with lead, copper and rosin, are examples of another type of adulteration.

Anise, fennel and quince seeds, cubeb berries, gum myrrh and benzoin, uva ursi, buchu and senna leaves, etc., have been repeatedly found with excessive amounts of dirt and foreign matter, sometimes as high as 40 to 50 per cent.

Scopola has frequently been found substituted for belladonna root, pokeberry leaves for belladonna, long buchu for buchu, and artificial camphor for the natural gum. Such substitution is nearly always intentional and is the more pernicious and more to be condemned on that account.

The number of such cases, as I have here enumerated, is becoming smaller and smaller every month, showing the wholesome effect of the law. Of course, it is not to be inferred for a moment, even if the drugs are pure when they are passed by the customs officials, that such high quality will be maintained until they reach the consumers. A single illustration, cited by Dr. Rusby, will emphasize the point. A New York jobber in crude drugs nearly fainted on being told that his ground belladonna root contained 50 per cent. of olive pits, but soon learned from his own investigations that the miller, to whom he sent his fine drugs to be ground, was systematically abstracting a portion and substituting adulterants. Rascals there are in this country, as well as in Europe and elsewhere.

Then, too, it must be borne in mind that not all drugs are imported, though a large proportion of the crude and powdered ones are. In working toward the ideal of a pure drug and medicine market, wherein no adulterator can gain a foothold, we must not overlook this fact. We must keep as careful a watch over state and interstate traffic as we do of the foreign.

Most of the cases of adulteration observed in the inspection of interstate samples are in the same category with those noted for imported products, viz., failures to conform to Pharmacopœia specifications, substitution of cheap, inferior material for the more expensive or high grade; for example, senna siftings for leaves, acetanilide for phenacetin, mixing the product with dirt and inert vegetable debris. This is an exceedingly raw, offensive sort of adulteration. When one buys drugs that are as "cheap as dirt," he usually gets what he pays for.

The U. S. Government has been seeking for a long time to control the quality of drugs that enter into the commerce of this country. Reviewing the history of drug adulteration, Dr. L. F. Kebler has pointed out that as early as 1840, federal officials were investigating the extent of adulteration of drugs, medicines and chemicals offered for entry at the various ports. Due largely to the efforts of Dr. M. J. Bailey, then examiner of drugs at the port of New York, a federal law

was passed governing the importation of adulterated and spurious drugs. The law became effective in 1848. In his testimony before the Congressional Committee, Dr. Bailey stated that at least one-half of the drugs imported through the customs house at New York were adulterated or had deteriorated in value so that they were not only worthless for medicinal use, but were often dangerous. Plainly, we are making progress against the practice of adulterating drugs.

That section of the law which pertains to the branding of drugs, undoubtedly was intended by the enactors to define clearly and positively the term "misbranded" in its relations to medicines and was aimed to destroy that flagrant and growing evil, which you gentlemen know has been the curse of the pharmacist's business. That the clause of the act relating to misbranding is not comprehensive enough to secure much needed reforms has been shown by recent adverse decisions of the courts. The effect of the decision of the Supreme Court in the Johnson Cancer Cure case has been seen and keenly felt by us. It was promptly and painfully retroactive. The liberty to lie was plainly given in this sweeping decision and was quickly taken advantage of by the unscrupulous compounder of drugs and the medicine fakir. I trust I shall not be misunderstood in what I have said directly and by inference about proprietary mixtures. There is no doubt a legitimate place in the drug business for many of them, providing, as Nelson says, they do not contain any actively potent ingredients, or, containing these, state clearly their names and amounts, with a suitable caution to the consumer.

It is not the fellow who is making and marketing an honest, meritorious medicine, and who conforms to the ethics established by your association, who arouses my wrath and deserves and gets the curses of his fellowmen and the condemnation of the courts. But the rascal who puts a little worthless, highly colored, foul smelling, vile tasting fluid in a bottle and sells it for a dollar or more, by dint of extravagant language, forceful suggestion and plausible lies, merits all that blind, outraged justice can hand out to him. It is not the rich who are robbed by such fakirs, but the poor who seek to avoid the physician's fee and the prescription clerk's charges. Therefore more is the pity!

I appreciate that I do not need to harangue to you gentlemen about the evils of adulteration and misbranding of drugs. You recognize much more fully than I the effect of these frauds, and are just as anxious to have them stopped. I am not a pessimist. The Food and Drugs Act is a good law, and has done much good. During the last five years in which it has been enforced, a whole lot of cleaning up has been accomplished. The weak spots in the law have been found out, and an effort is now being made to strengthen it and make it "fraud" proof. The Post Office Department has helped us greatly to put an end to many a bad medicine business by issuing "fraud orders." Your association, too, collectively, and individual members personally, has been immensely helpful to the Bureau of Chemistry in its work of enforcing the Food and Drugs Act. Your friendship, your encouragement and advice and the whole effect of your policy, standards and ethics, as shown in your publication, the National Formulary, are all deeply appreciated by the Bureau, especially by Dr. Wiley and Dr. Kebler. I trust this cordial coöperation may continue, and I believe it will.

DEVELOPMENT OF THE NATIONAL FORMULARY.*

C. M. SNOW.

The preparation of this paper has developed so many, to me, interesting bits of history, that I beg your indulgence, if it seems to partake of the nature of a paper for the Historical Section, rather than a discussion of the new National Formulary.

It seems to be quite universally accepted, that the attention of the American Pharmaceutical Association was first directed to the necessity of preparing a formulary of unofficial remedies some time about 1880, but upon consulting the very first volume of the proceedings of this Association, we find that in 1856, Mr. John Meakin, president of the Association, offered the following resolution, which was adopted: "Resolved, that with the view of more effectually carrying out the expressed wish of many of the members of this Association, for the compilation of unofficial formulas in local use with many physicians of our Union, a committee be appointed to collect such and report to the next meeting."

In accordance with this resolution, a committee of ten was appointed and the report at the next meeting shows that formulas for eighty-three preparations were submitted and adopted. The committee also recommended that these be appended to the pharmacopoeia for convenient use, but this recommendation seems never to have been carried out.

The following is one of the formulas contributed by a Boston member:

TINCTURE OF ALKALI COMPOUND.

Hard Wood Ashes..... O. ii
Common Soot.....Wineglass, i
Aquae ..... O. vi
M. Digest, settle, filter and sometimes add
Opii Tinct..... dr. ii to
oz. iv of the mixture.
Dose: Tablespoonful 3 times each day.

While this seems to be the first mention made of an unofficial alkaline solution, we do *not* claim for it that it is the "original" Liquor Antisepticus Alkalinus.

The work of the committee was evidently looked upon with much favor, as it was continued and its membership increased to fourteen.

The next year the committee reported nineteen formulas.

The following paragraph of the report indicates, that the first as well as all subsequent committees on non-pharmacopoeial formulas was subjected to rather unjust criticism:

"Your committee regret that they have been compelled, through the misconception of a few, to disclaim any desire to collect the formulae for nostrums or proprietary medicines; feeling assured that the Association has no affinity with such, they had hoped that the purpose of the committee would not be thus

*Read at the February meeting of the Chicago Branch.

misconstrued and desire that the result of their labors may contribute to the usefulness of the Association."

The committee was then discontinued.

It was in the early '70s that the physicians seemed to have first strayed away noticably from the remedies found in the pharmacopoeia. This condition was, no doubt, much influenced by the manufacturing pharmacists, who had by this time become very active in placing on the market, preparations made up with vehicles of sweetened, aromatic, hydro-alcoholic liquids.

The mercantile tourists in the employ of the manufacturers were as energetic in the introduction of these proprietaries, as they are at the present time, laying great stress on the "elegant pharmacy" of which these mixtures were representatives.

Under the conditions in those days, we recognize another confirmation of the saying "There is nothing new under the sun"; for then, as now, the pharmacists came forward with the complaint, that they were obliged to carry the nostrums of every manufacturer to be able to faithfully fill the orders of the physicians, the physicians as long as thirty-five years ago specifying some particular manufacturer's product. The pharmacists of that day were confronted by the same conditions as those which have led to the strenuous efforts of the active associations of the present day in their diligent struggle for the maintaining of the uniformity of formulas and to present to the physicians the value of adhering more closely to the preparations of the pharmacopoeia and particularly the National Formulary, which is practically the outcome of similar conditions beginning forty years ago.

As early as 1883 members of the American Pharmaceutical Association pointed out the alarming increase of proprietary medicines, as is evidenced by the following extract from the proceedings of that year: "It is ordered that a committee be appointed to present at the next meeting of the Association a list of non-official formulas, such as would meet with the requirements of the pharmacists of the country in enabling them to prepare such of the various elixirs, emulsions, fluidextracts, wines, ointments, etc., as are prescribed by the medical fraternity and supplied by manufacturing chemists, through the wholesale trade and otherwise. Although differing slightly, the preparations supplied by so many different firms are in the main identical. Yet in order to be able to comply faithfully with the demands of the physicians, all these kinds must be kept in stock, greatly to our detriment, and we think, in the end, to the consumer. Seeing this to be the case, efforts have been made in the different pharmaceutical bodies to remedy the evil, by furnishing formulas which the average pharmacist could prepare himself and dispense with the assurance that they contained the ingredients specified and of the best quality. The result if attained would be advantageous to the physician, pharmacist and patient alike, both therapeutically and financially, and remove the source of much annoyance and misunderstanding, as at present, a prescription filled in one locality, if refilled in another where the dispenser is not familiar with the requirements of the prescriber, unless some particular maker's preparation is specified or formula furnished, is likely to have the preparation returned, with many unflattering comments—resulting too

often in the loss of a customer." The resolution was adopted and a committee appointed, the personnel being:

J. W. Colcord, Lynn, Mass.
S. A. D. Sheppard, Boston,
Ewen McIntyre, New York,
J. T. Shinn, Philadelphia,
N. H. Jennings, Baltimore,
Chas. Becker, Washington,
J. D. Wells, Cincinnati,
M. W. Alexander, St. Louis,
C. L. Keppler, New Orleans,
E. T. Cowdrey, Chicago,
Emlen Painter, San Francisco.

But at even an earlier date than this, the members of the several pharmaceutical bodies of New York and Brooklyn, recognized the need and advantage of something to unify the different formulas used in these and adjoining cities. At a meeting of the New York College of Pharmacy, the German Apothecaries' Society and the Kings County Pharmaceutical Society, a joint committee was selected representing the best talent in the different societies and cities. This committee labored diligently and in an incredibly short time provided a particularly good volume, styled The New York and Brooklyn Formulary. The following introduction was printed in this Formulary:

To the Medical Profession:

The favor with which some of the preparations of the so-called "Elegant Pharmacy" have found with the medical profession during the past ten or fifteen years, has induced many manufacturers of Elixirs, Syrups, Emulsions, etc., to vie with each other, in the introduction of new combinations or to imitate each other's products, as soon as any of the latter appear to have acquired a ready sale. Quite commonly each manufacturer claims for his particular products the distinction of "superiority of manufacture" and "purity of materials." The physician prescribes the several makers' products in turn and thereby compels the pharmacist to provide himself with separate packages of each maker's preparations, many of which are left on his shelves, after the first or second call, so that the collection, finally, represents quite a respectable investment or rather a dead loss, since the articles deteriorate more or less rapidly and can not be sold in the market. Recognizing the ephemeral character of such products and relying on the further support on the part of the medical profession, the manufacturers keep on increasing the number of their preparations, and do not fail to present sample bottles of each to the physicians, who, thereupon, frequently prescribe them one by one and thereby increase the pharmacists' dead stock—an everlasting reminder of poorly invested capital.

The practice leads to another deplorable evil, namely to this, that the patient knowing the names of the articles and of the manufacturer, will procure them subsequently on his own responsibility, at wholesale prices, without further reference to the physician or pharmacist. These goods, also, induce unscrupulous and uneducated people to play doctor, since the labels pretend to give all sorts of therapeutic information, recommending the contents in this or that disease and specifying the doses to be administered. Naturally, this intolerable annoyance is sorely felt wherever it exists. It has been prescribed and publicly denounced by the representative pharmaceutical bodies of New York and Brooklyn and delegates were chosen from each over a year ago, to form a joint committee which should devise and publish practical formulas for such preparations of the "so-called" "Elegant Pharmacy" as appear to have established a claim to recognition and have survived out of the endless number offered to the medical profession.

With this modest little book, which is herewith respectfully submitted, the Joint Committee offer to the physicians and pharmacists of our sister cities, the result

of their thoughtful labor and skill—a result reached only through a large number of experiments made especially for the purpose. The Joint Committee would respectfully request the medical profession to abstain, hereafter, from designating the maker's name of any preparation for which a formula is found in this pamphlet. Thus both physician and pharmacist will be sure to obtain uniform preparations, no matter where they are dispensed.

At the time the efforts of the American Pharmaceutical Association Committee on National Formulary had crystalized into the adoption of the work by the Association, the New York and Brooklyn Formulary was in the process of its third revision. It is interesting to note that the Formulary contained receipts for the making of eighty-three preparations, and of these fifty-two were elixirs. It must have been especially gratifying to the Association to have this Formulary offered in toto, as a nucleus for the proposed National Formulary, as adopted at the meeting of the Association at Pittsburg, in 1885. The New York and Brooklyn Formulary was offered and accepted at the same meeting. The gratitude and appreciation of the Association is shown in the personnel of the Committee on National Formulary chosen at that time:

Dr. Chas. Rice, Chairman, W. P. DeForest,
P. W. Bedford, S. J. Bendiner,
A. Tsheppe.

Four of these gentlemen being members of the Editing Committee, which tendered the New York and Brooklyn Formulary to the Association. As an indication of the ability of the Chairman of this Committee, let it be remembered, that he was selected as Chairman of the Revision Committee for the Pharmacopœia for 1890 and 1900.

This committee was instructed by resolution to continue and complete the revision, then so well under way, with a view to making it national in its character.

The following year the committee was directed to prepare a preliminary draft of the National Formulary, which was to contain all the work done up to September, 1886. This draft was published in the proceedings of the Association for 1886, reprints were also made and circulated. The draft contained formulas for 414 preparations, and many of them enjoy much favor today.

At that time the committee also submitted a number of recommendations, the first of which was on the scope of the National Formulary and anent the discussion of what shall and what shall not be admitted into the coming revision, you will be interested in hearing what the founders of the work intended to have appear on its pages.

"SCOPE OF THE NATIONAL FORMULARY."

"The National Formulary to be published under the authority of the American Pharmaceutical Association, may contain the formulas of such preparations as have either been formerly official in the United States Pharmacopœia and have been discarded, though still in demand; or such as have never been official but deserve recognition, because more or less in general use. Among the latter, may be any preparation contained in foreign pharmacopœias if there is known to be a sufficient demand for them, in any section of the country. It shall also contain the preparations belonging to the so-called 'elegant pharmacy' but it shall not be encumbered with purely technical, trivial or fancy preparations."

From this it may be clearly understood, that it was not the intent of these earnest and, beyond question, most able pharmacists, to have "test-tube doctors" and pharmacists who do not practice pharmacy, dictate the make-up of the book.

It is my contention, that if any considerable number of real physicians use any remedy for the relief of the sick, such remedy should be recognized by the National Formulary and directions given for its uniform preparation, no matter how rabidly it may be attacked by those men who have taken the didactic work prescribed for the degree of Doctor of Medicine, but who practice only in glass, in laboratories.

You need not be told that it will matter not one iota to the physician who uses the drug with success, whether or not it is in the Pharmacopoeia or National Formulary; he will continue to use it just the same. And you may rest assured, too, if directions for its preparation are not given in the official volumes, the manufacturers will prepare it and each will vary the combination sufficiently, so that when it gets to the physicians, you will have to stock another dozen or so forms of an additional preparation.

The first issue of the National Formulary was published and circulated in 1888 and contained 435 formulas.

The first revision appeared in 1896 and gave formulas for 454 preparations. The greatest innovation in this volume being the adoption of the metric system of weights and measures, and which, according to the preface, "placed the National Formulary abreast of the times and its text in harmony with that of the United States Pharmacopoeia of 1890."

Our good friend, Professor C. Lewis Diehl, was Chairman of the Committee on National Formulary at the time, having been so appointed in 1888, and we are pleased to say, still continues in that responsible position. The third issue of the book, and the one now official, came out in 1906. It was delayed because of the belated appearance of the eighth revision of the pharmacopoeia. This time the Formulary gave the quantities, not in the metric system alone, but in the apothecaries' as well.

The conversions necessary, because of the two systems, were arduous, and proved to be a serious handicap to the book. Because of the slight variations in changing from one system to the other, more complaint came than from all other criticism together. Average doses were introduced for the first time. Still another innovation was the separation of the obsolete pharmacopœial preparations from the main text of the book and collecting them in an Appendix. Forty-nine new formulas were added, 617 formulas in all.

Hardly had the second revision been issued when the highest possible honor came to the Formulary, for it was in that same year that it was designated as a standard for the administration of the Pure Food and Drugs Act.

Let us all here understand that to no one, so much as to our beloved and lamented benefactor, Albert E. Ebert, is due the credit of bringing this honor to the Formulary.

Being now made a legal standard, the Formulary was promptly attacked from all sides, not only for the errors it did contain, but because of the definitions for standards it did not contain.

Appreciating the responsibility now carried by the National Formulary, the Association urged its early revision.

At this time the Committee on National Formulary comprised only five members, with an auxiliary committee of ten. In 1908, the Association met at Hot Springs, Ark., the Committee on National Formulary convened a few days in advance of the regular meeting and did an immense amount of work on the Formulary.

The following are some of the recommendations of the Committee which were adopted at that time:

That the Committee on National Formulary consist of fifteen members, selected by the Council of the Association, for the full period of the revision.

That the book be called simply, The National Formulary.

That the strength of the preparations be stated, as so many grams in one hundred cubic centimeters.

That the metric system alone be used.

That all formulas be in uniform style.

That a statement be inserted in the preface to the effect that the National Formulary does not assume any responsibility for the therapeutic value of any preparation, and that the question of *additions* and *eliminations* be decided on the *basis of commercial demands.*

That suitable definitions for unofficial ingredients be inserted.

That the term "Appendix" be eliminated and the book be designated as parts one and two.

That no trade-marked titles be introduced.

The nomenclature, titles and synonyms should be in conformity with the U. S. P. or with modern ideas, should be descriptive of composition and that therapeutic or anatomical titles should be discouraged.

Authority given to the Committee to establish a specific date on which the next edition of the National Formulary go into effect.

The Chairman has divided the Committee into four subcommittees.

To Subcommittee "A" is intrusted the task of defining and if necessary establishing standards for ingredients not now official. This subcommittee has six members, divided into two groups of three members each.

To Subcommittee "B" is assigned the task of working out formulas for new preparations and this committee has nine members divided into three groups of three members each.

Subcommittee "C" examines and passes judgment on the reliability of the formulas furnished. There are three members of this subcommittee.

Subcommittee "D" is charged with furnishing correct nomenclature and constructing the text of the Formulary. There are three members of this subcommittee.

In the prosecution of the work, all communication is by correspondence, which means of course a considerable loss of time. First the individuals on the subcommittee must agree on the results attained in their assignments and as rapidly as possible forward the findings to the Chairman of the General Committee, who causes bulletins to be issued and mailed to all the members of the committee, for individual review and comment. A little later a vote is taken to determine whether it is the sense of the whole committee that the findings of the sub-

committee be adopted or rejected. By these methods fairly good progress has been made. The Association and the Committee are under many obligations to the Surgeon-General of the Public Health and Marine Hospital Service and to Mr. M. I. Wilbert for the preparation of the bulletins and voting sheets used in this work. Mr. Wilbert, who is a member of the Committee on National Formulary, is also a member of the Surgeon-General's staff and it is under his direction that the bulletins are issued, which keep us so well informed as to what is being done by the different subcommittees.

Since the apportioning of the work as has been outlined, the committee has had two opportunities for personal conference, at Richmond, Va., in May, 1910, and in Boston, August, 1911. At both of these meetings much was accomplished.

One of the resolutions adopted by the Committee authorizes the Chairman to submit through the pharmaceutical press or through the Secretaries of the Local Branches of the American Pharmaceutical Association, for discussion and experimentation, such of the proposed changes and additions as may be subject to additional improvement. In accordance with this resolution some five installments have been published and the responses received, verifies the wisdom of such procedure.

With the adoption of the Pure Food and Drugs Act, it seemed advisable and the Committee was instructed to include in the coming revision, a statement of the alcoholic content of the various preparations. To this end a subcommittee was appointed to make the determinations and entered vigorously upon the work. It now appears, however, that the resolution is of doubtful value. In the first place the P. F. & D. Act applies only to interstate commerce and hardly concerns the retail pharmacist. If now the National Formulary as a legal standard designates a definite alcoholic strength for a particular preparation such strength will be mandatory, and even a slight variation, will in the eyes of the Commission charged with the enforcement of the Pure Food and Drugs Act constitute a violation. You who have had experience in making preparations appreciate how extremely difficult it is to have them always agree in alcoholic strength, because of the condition of the drug, as to moisture when extracted, care in keeping percolator and percolate covered to prevent volatilization and the method of keeping the finished product.

To indicate how closely the Government watches for such violations, a United States Solicitor has had one manufacturer indicted because his preparation varied 1.5 per cent. in alcohol from the statement made on the label. Now we know that the average manufacturer is in a better position to determine and adjust alcoholic percentages than is the retailer and unless a liberal range is permitted, such statements are rather likely to prove a burden than a benefit to the retail pharmacist. Under these circumstances the Committee is quite ready to recede from its original position, for the present. It does, however, seem that the statement of alcoholic content of preparations should be given in the succeeding revision as it is desirable information and the fact that so many of the States are framing food and drugs acts to conform to the Federal Act will probably make it necessary for the retailer to sooner or later give the alcohol percentage of preparations on the label of his products and the Pharmacopœia and National Formulary should supply this data.

The matter of standardizing the coloring agents of the Formulary, tinctures of cudbear and caramel, has received the very earnest attention of a number of the ablest members on the Committee and it seems quite likely that in the fourth edition, we shall have the means of ending the trouble now so persistent in the use of these coloring media, the inability to get shades in preparations to agree at different times. Perhaps the greatest innovation in the way of new preparations is the introduction of Fluidglycerates. These are of the same strength of the fluidextracts but contain no alcohol, hence mix clear with aqueous solutions. Another matter that has somewhat perplexed the Committee, is, how far shall it be influenced by manufacturers, as to the admission or exclusion of formulas. Another of the added features of the book which is taking a great deal of time, is the preparation of the standards and descriptions of the articles which enter the preparations but for which no standards have before been offered. These will approximate 500 and will probably be grouped in Part II of the book. Up to the present time no one has ventured a definite statement, as to when we might expect to have the new book for use, but it does seem now that we may reasonably expect it before the coming meeting of the Association in Denver. In closing, permit me to say, that from the matter contained in the bulletins thus far circulated, I truly believe the retail pharmacist will find in the "N. F. IV" the most perfect and valuable book ever offered to American pharmacists.

THE RICHARDSON BILL.*

F. W. NITARDY.

The December issue of the Western Druggist contains an editorial entitled, "A Bill to Kill All Ready-Made Remedies." The article in question regards the Richardson Bill as a "Doctor's bill designed to destroy practically every proprietary medicine; to prohibit any druggist putting up a line of his own remedies, and to compel every person to be held up for a doctor's fee every time even the simplest remedy is needed."

Copies of the editorial in question must have been sent broadcast over the country. Several Denver dailies mentioned it and one printed the entire article under big headlines "Druggists Protest," or something similar.

That the article referred to does not express the sentiment of the retail druggist is very clear to any one familiar with matters pharmaceutical.

Both the JOURNAL of the A. Ph. A. and the N. A. R. D. Notes speak of the Richardson bill in quite different terms, and these journals are representative, published by and in the interest of druggists, and cannot be bought to advocate or denounce a certain measure as may suit the buyer.

In the issue of February 8 of the N. A. R. D. Notes, the editor speaks as follows:

"Notes and the N. A. R. D. are not in favor of the passage of the Richardson bill in its present form.

"Notes and the N. A. R. D. are in favor of the principle of the Richardson bill."

*Read before the Denver Branch.

The following resolutions passed at the Niagara Falls convention, are quoted as the basis of the stand of the N. A. R. D. on the Food and Drug Act Amendment question:

"Resolved, That this association favors an amendment to the Pure Food and Drugs Act that will protect the public against unwarranted claims of nostrums and will provide that the manufacturing of medicinal preparations be in the hands of licensed pharmacists.

"Resolved, That this association favors interstate anti-narcotic legislation that will prohibit all illegitimate traffic in narcotics and habit forming drugs, and confine their sale to proper channels and uses to strictly medicinal purposes; and

"WHEREAS, Section 7 of Regulation 7 of the Food and Drugs Act permits the sale of U. S. P. and N. F. preparations of various strengths, providing such strength is designated on the label; and

"WHEREAS, Such provision causes much confusion in the enforcement of pharmacy laws, providing for the use of U. S. P. and N. F. names on drugs of standard strength alone; therefore, be it

"Resolved, That this section should be repealed or so amended as to provide that all drugs sold to the public under their official names or recognized synonyms, shall be of standard strength."

The stand taken by the editor of "Notes" is very well taken indeed. He also states in his editorial that: "We have it from inside sources that the bill in its present form is merely tentative; that its sponsor freely acknowledges that some of its provisions are in conflict with each other."

It seems to be the intention of the bill to confine the manufacture of medicinal products to pharmacists and physicians, to which I can see no reasonable objection, and for the druggists this should be a good thing. It enlarges the scope of the Food and Drugs Act by including toilet preparations and tobacco, also a good provision.

Like our present law it permits the deviation from the official standard in official preparations, which I believe is wrong. At least this point should be well considered before the amendment takes its final form.

Some time ago I ordered a pound of Hypophosphorous acid U. S. P. from a local jobber, and received an article labeled as follows:

"HYPOPHOSPHOROUS ACID 50 PER CENT.

"This article yields a precipitate with ammonia water and the filtrate a turbidity with barium chloride test solution. Guaranteed under the Food and Drugs Act, etc."

To one not well posted on the chemistry of the reactions involved, such a label has little meaning. He would not know if the note indicated that the article was of official quality or not of official quality without consulting the U. S. P. tests for the purity of Hypophosphorous acid. Still the label is legal. This illustrates the farce of the system of labeling articles not up to the official standard.

The list of interdicted drugs in the Richardson bill is rather large. It is probably intended in this bill as in the present law that an article is to be considered misbranded if any of the articles named are present and not mentioned on the label, however, the bill is not clear on this provision. It seems that some of the articles included in this list may well be omitted.

The bill should be studied by every druggist and discussed at association meet-

ings and the results published. Some amendment along this line is necessary and will no doubt be made, but if we do not do our duty and take proper interest in these matters, amendments may be passed by Congress that will prove burdensome to us.

HINTS ON PROPOSED N. F. FORMULÆ.*

LOUIS SAALBACH, PHAR. D.

The formula proposed for Mistura Ferri Salicylatis is as follows:

MISTURA FERRI SALICYLATIS.

Sodium salicylate	125.0 Gm.
Tinct. of ferric chloride	125.0 Cc.
Ammonium carbonate	6.5 Gm.
Citric acid	14.0 Gm.
Oil of betula	4.0 Cc.
Glycerin	175.0 Cc.
Distilled water enough to make	1000.0 Cc.

Dissolve the citric acid in 200 Cc. of distilled water, add the ammonium carbonate and then dissolve the sodium salicylate in this solution. Add the tincture of ferric chloride, glycerin and oil of betula; mix, and then add enough distilled water to make 1000 Cc. and filter. When prepared according to the above formula and instructions, a heavy precipitate forms. This consists of ferric salicylate and salicylic acid. The ammonium carbonate and citric acid are used in this formula to make ammonium citrate, in a solution of which, ferric salicylate is soluble.

There is insufficient ammonium carbonate present to convert all of the citric acid to citrate; furthermore, the salicylic acid also requires an alkali to keep it in solution.

Good results may be obtained by increasing the quantity of ammonium carbonate to 25 grammes and mix as follows:

Dissolve the citric acid in 300 Cc. of distilled water, add the ammonium carbonate, and when solution has been effected add the glycerin, then the tincture of ferric chloride, in which the oil of betula has previously been dissolved, and finally enough distilled water to make the mixture measure 1000 Cc.

When prepared in this manner a clear dark red solution is produced, which does not require filtration.

PETROXOLINUM LIQUIDUM.

Liquid petrolatum	50 Gm.
Oleic acid	28 Gm.
Oil of lavender flowers	2 Gm.
Stronger ammonia water	5 Gm.
Alcohol	15 Gm.

Mix the liquid petrolatum and oleic acid in a flask, add the alcohol and then the stronger ammonia water, and warm the mixture on a water bath with frequent

*Presented to the Pittsburgh Branch.

agitation, until it becomes clear. Lastly add the oil of lavender flowers and mix thoroughly.

By comparing this formula with that of Liquid Petrolatum Saponatum now in the N. F. the substitution of stronger ammonia water for spirit of ammonia will be noted. This is undoubtedly a wise change, when we consider that the ordinary drug store does not usually have spirit of ammonia upon its shelves. Or when it has, it is deficient in strength.

The mode of preparation may, however, be improved upon. By following the above instructions, a clear mixture is produced within five minutes after placing on a water bath. But on cooling it frequently separates into two layers. In the writer's experience this happened three times in succession.

Uniform results may be rapidly obtained when we proceed as follows:

To the oleic acid contained in a flask, add the stronger ammonia water, and alcohol which have previously been mixed. Shake well, and when completely saponified, add the liquid petrolatum and oil of lavender flowers. Mix thoroughly by shaking.

CORK.*

Its History, Origin and Manufacture.

OTTO RAUBENHEIMER, PH. G.,

The writing and reading of a paper on Cork may seem trivial to a great many, but I have been prompted to undertake this task for the following two reasons:

1. The average pharmacist, who uses corks daily and considerably, has but very little knowledge of the source and manufacture of that necessary commodity.

2. The books in English, especially the books available to the pharmacist, f. i., those on pharmacy and botany, and also the dispensatories, have nothing or but very little to say as to the history, origin and manufacture of cork. Through an introduction to the owners of one of our large cork factories in Brooklyn I had the good fortune of visiting their plant in operation, thus obtaining a great deal of practical knowledge.

Just as the venerable oak, the monarch of the trees, the patriarch of the forests, has been known from times immemorial and its bark has been used in tanning, so another species, the cork oak, has been well known to the ancients and five of the chief properties of its bark were known and utilized 2000 years ago.

Theophrastos, 400 B. C., the father and founder of botany, describes the cork oak in his great work, Historia Plantarium. He calls the tree "phellos," and gives its habitat as the Pyrenees, and also describes two varieties, one an evergreen, our present *Quercus suber,* L., the other losing its leaves in the winter, our present *Quercus occidentalis,* Gay. Theophrastos also states that "phellos" produces a thick, fleshy bark, which when stripped off will grow again and makes

*Read and demonstrated with specimens at the March meetings of the New York Branch of the A. Ph. A. and the Kings County Pharmaceutical Society.

the tree more vigorous. This bark is so light that it never sinks in water and is therefore used for a variety of purposes.

At the time of the early Roman empire, cork must have been used to close wine vessels, because the poet Horace, about 25 B. C., speaks of removing the *cork sealed with pitch* from a jar of wine 46 years old.

Pliny, 50 B. C., the great Roman historian, in his wonderful work, "Historiæ Naturalis," written in the first century of the Christian era, corroborates the statements made by Theophrastos. In describing the tree he also remarks that the acorns are bitter and of the worst quality. He names the corb "Suber" and mentions the following uses for it:

1. As floats for the nets of fishermen. This especially is shown in the case of the drag-nets, where the upper edge of the net should be kept at the surface of the water.

2. As buoys for ships' anchors. They were called "ancoralia," and by being attached to the anchor rope floated on the surface of the water and indicated the position of the anchor. These buoys also served to attach smaller boats when in the harbor. Inasmuch as today blocks of wood or empty casks are used for this purpose, the Dutch sailors originated their proverb, "He has a head like a buoy," that is, a "block head."

3. As soles or insoles for shoes, in order to secure dry feet, especially in the winter, and as high heels were not in vogue at that time, the Roman ladies, who wished to appear taller than they had been formed by nature, put plenty of cork under their feet.

Marcus Terentius Varro (died 27 B. C.), a contemporary of Cicero and Caesar, the great Roman polyhistorian, in his work "De Re Rustica," speaks of cork or suber as a non-conductor of heat.

Lucius Junius Moderatus Columella, the celebrated Roman agronomist, often called the father of agriculture, in his book, an authority on the cultivation of medicinal plants, 60 A. D., speaks of the uses of cork, which he names "Cortex" or "Suber" and recommends it for beehives.

Plutarch (born 50 A. D.), the great Roman historian and biographer, in Vita Camilli, informs us of another use of cork, namely,

4. As jackets or life-preservers. He states that the Roman whom Carmillus sent to the capitol when it was besieged by the Gauls, put on a light dress and put cork around his chest and thus succeeded in swimming through the Tiber.

Isodorus Hispalensis (570-636), bishop of Sevilla and last historian of the Roman Empire, in his great work, Etymologiarum, says under "De Re Rustica" that cork is used to facilitate swimming.

If besides these four uses of cork we add the fifth, namely, as stoppers, as pointed out before, then we can readily see that the five principle functions of cork of today were already recognized 2000 years ago.

The Origin of Cork Stoppers.—This use is perhaps most important especially to the pharmacist, being the most extensive and principal use of cork at present. This was not entirely unknown to the ancients as it is mentioned by Horace, Pliny and Cato. Nevertheless the use of cork stoppers could not have been very common, because the works on agriculture and cookery do not mention the same, but

directed the containers to be sealed with clay or pitch, etc. As Italy produced little timber, consequently casks were but little used and had to be brought from the district of the Alps. The wine was kept in the Apotheca vini, or special wine cellar, in large earthen vessels with wide mouths, and sealed with clay, pitch or parchment, or the air was kept away by a layer of olive oil. From these the wine for daily consumption was drawn into smaller vessels, as pitchers or jars or bottles which could be stoppered with cork. The Romans had principally two kinds of bottles, the "lagenæ" with a long neck and the "ampullæ" with a short neck, but there is but very little proof that these bottles were used for wine and were stoppered with cork. It was customary to add a layer of oil to exclude the air.

Saladin of Ascolo or "Asculanus," the celebrated "Artium et Medicinæ Doctor," in the middle of the fifteenth century, in his "Compendium Aromatariorum," the first book on the practice of pharmacy, does not mention corks but states in the seventh chapter that the vessels were stoppered with pitch or wax. This troublesome and also expensive method lasted until the end of the seventeenth century, when it was replaced in the German Apothecary shops by cork.

In the champagne industry carried on in the monasteries corks naturally became a necessity and credit is given to Dom. Perignon in Epernay, France, for the invention of bottle corks, at least for champagne bottles.

Even today the champagne corks are cut by hand and not by machinery. How the cork industry developed can be seen from the following records. In 1781 the spring of Niederselters, which even to the present day puts up its carbonic water in earthen jugs and not bottles, used 2,208,000 corks, which cost 4 florins per thousand. These were supplied by a merchant at Strasburg, who was supposed to take back the old corks which he cut into smaller stoppers. It is also stated that the demand for smaller corks in the apothecary shops was but very limited.

Synonyms.—Lat.: Suber, Suber Quercinum, Cortex Suberis, Lignum Suberinum.

Eng.: Cork, Corkwood.

Spanish: Corcha.

German: Kork.

French: Liège, Chêne-liège.

Etymology.—The name "Quercus" is derived from the Celtic "quer" = nice, and "cuez" = tree, indicating the beauty of that venerable tree. "Suber" is from the Latin "sub" = under, from its use as soles on shoes.

The English word "cork," and the German "Kork" are undoubtedly derived from the Spanish "Corcha," which again comes from the Latin "Cortex." "Cortex," the bark, is a corruption of "Contex" from "Contego" = to cover, which again is derived from "Cum" = with, and "tectum" = roof or cover.

The French "liège" is derived from the Latin "levis" = light, from the property of cork. In order to avoid any misunderstanding I might also mention here, that Cork, the city of Ireland, did not receive its name from the cork oak, which does not grow in the northern climate, nor from the manufacture of corks, but from the fact of being located on a former *swamp,* which in Celtic is called *"Corroch."*

Source and Habitat.—Cork is derived commercially from the cork oak, prin-

cipally from *Quercus suber* L., an evergreen tree, and to a smaller extent from *Quercus occidentalis,* Gay, which loses its leaves yearly, as already described by Theophrastos. The trees are usually from 20 to 40 and sometimes 60 feet high, and measure 3 to 5 feet in diameter and attain an age of about 2000 years. The wide spreading branches are generally thinly covered with small leaves which are thick, glossy, slightly serrated and downy underneath. The tree flowers during April or May and the yellowish flowers are succeeded by small acorns, which when fed to pigs give their meat a peculiar piquant flavor, which has given a reputation to the Spanish mountain hams.

The cork oak is a native of the countries bordering on the Mediterranean Sea, especially Spain, Portugal, Algiers, and Tunis (Morocco). It requires a temperature of 13° C., and does not thrive beyond 45° latitude. The cork producing territory covers practically all of Portugal and part of Spain, namely Andalusia and Estremadura in the South and Catalonia in the North. The total area covered by cork forests is estimated at about five million acres and the annual production of cork wood is said to be about fifty thousand tons. Some of the very best bark is made into corks in Portugal and Spain, especially in Catalonia, but most of it is exported as corkwood to the United States, England, Germany, Austria, etc. The principal shipping port is Sevilla. France obtains a great deal of corkwood from Algeria.

Cultivation of the Cork Oak.—The preservation and cultivation of the cork trees has been attempted and practiced for some time especially in the southern part of France and Algeria. As early as 1859 a French work was written by Rousset: "Culture exploitation et management du chêne-liège en France et en Algérie." The United States Government in 1858 distributed seedlings and I am informed that in the southern and southwestern section, cork oaks are now growing which in time will furnish cork.

Formation of Cork.—The bark of the cork oak is covered with an epidermis up to its third year, which then bursts lengthwise owing to the growth of the corky layer underneath. The formation of the cork or dead cells or peridermis is done by the inner layer, the cambium, and continues regularly. When the tree is about fifteen to twenty years old it has a diameter of about five inches, or to be more correct, measures forty centimeters, according to the Spanish Government regulations, then the so-called male cork or virgin cork is removed for the first time. This is of very little commercial value, being rough and coarse in texture. The removal of this virgin cork, however, promotes the further development of cork, because the inner bark, or cambium, the so-called mother-cork, undertakes at once the formation of a new covering of much finer texture and elasticity. The cambium with its life-giving sap, forms two layers of cells each year, one within, which increases the diameter of the trunk, and the other without, which adds thickness to the cork. In about eight to ten years, the cork layer becomes about 17 to 26 mm. thick and is then removed. This so-called female cork is more valuable than the virgin cork but is not as fine in quality as the third and subsequent strippings which follow at regular intervals of eight to ten years. The cork oak furnishes the very best quality of cork at the age of fifty to one hundred years; when the tree becomes 150 years old the quality of the cork gets poorer.

Collection of Cork.—This is performed by stripping it off the tree, using great care not to injure the cambium, in which case a reddish liquid will ooze out and no more cork will be formed at that part of the tree. The peeling is done from May to August in Algeria and during July and August in Spain and Portugal. The French in Algeria sometimes use saws, but the Spaniards employ hatchets with long wedge-shaped handles. The bark is cut around the trunk and the branches in several parallel places and the two incisions are then connected by several longitudinal cuts, following as much as possible the deepest of the natural cracks in the bark. By inserting the wedge-shaped handle of the hatchet, the cork is then detached. The thickness of the bark is from one-half to two and one-half inches and the yield varies according to the size and age of the tree from fifty to five hundred pounds. The gathered bark is next removed to the stations where it is put into boiling water in order to soften the cork so the outer bark can be scraped off. This process reduces the weight of the cork almost 20 per cent. The boiling also extracts the tannic acid and increases the volume about 30 per cent. Being now soft and pliable, the bark is flattened and is packed and pressed into bales bound securely with steel bands.

These bales weigh uniformly 106 kilos, or about 224 pounds, so ten of them make an English gross ton.

Manufacture of Corks.—Corks in olden times were of course made by hand, using a very sharp knife. This method is still practiced to some extent in Spain and Portugal. In fact the very best corks, as f. i: champagne corks, are entirely cut by hand. It is said that owing to their unevenness, i. e., on account of not being exactly round, they make much better stoppers.

Sorting of the Corkwood.—The first step is the sorting of the corkwood, for although every bale is stamped A, B, C, D, etc., according to its quality, it is again assorted. It must be remembered that the thickness of the bark determines the maximum diameter, not the length of the cork, as the *cutting* is *done across* and *not with* the *grain*.

Steaming.—As the corkwood is very dry and brittle after its long journey and storing, it is necessary to soften it so as to make it workable. This is done in large covered vats by means of steam. The steaming process makes the corkwood flexible and also slightly increases its bulk and especially prepares it to undergo the following mechanical operations:

Slicing.—By means of a special machine, a slicer with razor-like circular steel knives making hundreds of revolutions every minute, the softened bark is cut into strips, according to the desired length of the cork. It can then be seen that the thickness of the bark determines the maximum width of the finished cork and that the width of the strips represents the length of the cork.

Punching.—From these slices by means of a blocking or punching machine, the straight or cylindrical corks are cut out. This is quite a dangerous operation and many a workman, who has to guide the strips to be punched, has lost one of his fingers.

Straight Corks.—These processes, as we have seen, produce the straight corks.

Tapered Corks.—The corks used in pharmacy are the tapered kind. These are

manufactured from the "straight" variety by passing them through a machine which by means of a very sharp circular knife "tapers" the corks.

Polishing.—In order to produce a very smooth cork, they are polished by rapidly rotating emery wheels.

Bleaching and Washing.—To clean the corks which of course have become soiled through these mechanical operations and in order to give them the white appearance instead of the reddish color of the natural corkwood, they are bleached and washed. This is done in very large vats, the first bath containing a weak solution of chlorinated lime, the second one of oxalic acid. The corks are then rinsed in hot water and dried by whirling in large revolving cylinders of galvanized wire netting. This quick drying is a necessity as in slow drying the corks might develop a mould.

Grading and Assorting.—The last and perhaps most important step is the grading and assorting of the corks. This is done by girls, who in time become expert in this work, which they perform with such rapidity as to assort 20,000 corks during one day's labor.

Storing.—The proper storing of corks is of great importance. They should be kept not too dry nor too damp, as in the former case they become brittle and in the latter they get mouldy. In my own experience I have found the best way to keep the stock in the cellar but not directly on the cellar floor. For the corks in the store I keep a moistened piece of blotting paper in each compartment. This will supply the necessary moisture and saves me a good deal of annoyance by "breaking off" when putting corks into bottles.

Packing.—As is well known to every pharmacist, the corks are packed in five-gross bags. The slow counting has been replaced by the quicker weighing, the weight of each five gross of the different lengths and grades being known to the manufacturer.

Scale of Diameter of Corks.—There is no special rule as to the length of the corks which are usually graded as short, regular, long and extra long. But there is a standard for the diameter of corks, the U. S. Standard. The corks are measured at the upper or larger end and a cork with a diameter of 1 inch is called No. 10. The difference in each size is 1/16 of an inch. No. 9 measures 15/16 inch diameter, No. 8 measures $14/16 = \frac{7}{8}$, etc.

Fancy Corks.—There are corks which are branded on the side or have initials or monogram on top. Some are made with a polished wooden top, others with aluminum top. There are also corks covered with a rubber covering in place of the more expensive rubber stoppers. Corks having a camel's hair brush inserted, as for corn cure, might also be enumerated in this category.

Other Corks.—Besides the tapered prescription corks used by pharmacists, there are a great many other varieties, f. i., the straight corks from the finest quality champagne corks down to the common soda water cork; flat corks for wide mouth bottles or jars, the so-called specie cork; shell corks with a perforated center, generally used with a sprinkler top; disks—these are very largely used as a lining for metal bottle caps. The cork is sliced or split by very sharp circular saws and from these flat pieces about 1/9 inch thick, the disks are stamped out.

Paraffined Corks are prepared by rotating the dry corks in large hot drums with just sufficient melted paraffin to be absorbed. Through the rotating these corks are polished at the same time. Paraffined corks could with advantage be used much more than they are at present; they are especially useful for acid and also alkaline liquids. It may perhaps be not generally known that the reason the corks of some of the proprietary preparations as milk of magnesia or milk of bismuth are not attacked is because they are paraffined. I have some corks here which have been in contact with magma magnesiæ for over one year.

The discoloration of ordinary cork as well as the discoloration of the milk of magnesia can easily be explained, as the suberin in the cork is saponified by alkalies.

Other Articles from Cork.—Among the numerous other articles manufactured from cork, life preservers are perhaps the most important. According to the U. S. regulations they must not weigh over seven pounds.

Other articles are ring buoys, mooring and anchoring buoys, yacht fenders, seine corks for fishing nets, insoles and soles for shoes, floats for plasterers, wheels for polishing glass, balls to be used at seashore, artificial limbs and a great many smaller articles as bobbers for fishing lines, handles for fishing rods, bicycles and pyrographic instruments, tips for penholders, strips for eye glasses, etc., etc.

Use of Waste.—The waste in a cork factory is tremendous, amounting to about 60 per cent. All of this waste is saved even the dust at the various machines which by powerful air suction is carried away by pipes. The waste is ground or powdered and utilized to manufacture linoleum, together with linseed oil, floor tiling, cork cardboard, etc.

Together with melted pitch it is pressed into insulating cork, which is a non-conductor of heat and a non-absorbent of moisture. Thus far I have been unable to learn if ground cork is also used in the manufacture of breakfast food. I should, however, not be surprised to see it advertised for this purpose, f. i.

"Suberite gives an appetite," or,
"Corkite breakfast food is a corker."

Artificial Cork.—In going over the available literature on cork I also came across a patent for the manufacture of artificial cork from ground cork, glue, sodium carbonate and calcium chloride. How successful this combination works I am unable to state, but hardly think it can replace the natural corkwood.

Importation and Duty.—The importation of cork into the United States amounts to over five million dollars annually. There is no duty on the cork wood, but 30 per cent. ad valorem for manufactured material. The duty on cork stoppers up to three-fourths inch in diameter is 25 cents per pound and above that 15 cents per pound.

Inventions by Pharmacists.—I might also mention that the cork borer which has largely succeeded the rat tail file was invented by the German pharmacist Carl Friedrich Mohr (1806-1879), the father of volumetric analysis, who also originated the graduated burette and the pinch cock which bear his name. In 1860 the cork machine was first recommended by a German pharmacist in the Pharmaceutische Centralhalle. The pharmacist, C. L. Lochman, took out a United States

patent on August 27, 1867, on the well-known rotary cork press, which is used today.

Literature.—Among the literature which I have consulted I beg to point out the following:

Flückiger: Pharmakognosie des Pflanzenreiches.
Hager: Pharmazeutische Praxis.
Beckmann: Geschichte der Entdeckungen und Erfindungen.
Schelenz: Geschichte der Pharmazie.
Tschirch: Handbuch der Pharmakognosie.
Rousset: Culture, Exploitation et Management du chêne-liège en France et en Algérie.

As stated at the beginning of my paper, the literature on this subject in English is very scant indeed, especially in books which are available to the pharmacist. For this reason I trust that my somewhat lengthy treatise will give the pharmaceutical profession some idea as to the history, origin, cultivation and manufacture of cork.

BROOKLYN, NEW YORK, March 11, 1912.

ON BEING GOOD WITHOUT DOING GOOD.

"I do not know any occupation that is worth so little while to grown-up people as simply being good without doing some good. Of course, there are some people that are perfectly satisfied with the appearance of things. There are men that don't need any money and don't want it, and just get the community to believe they have it. So we find them in every community straining every effort and living as we call it beyond their means and keeping up appearances, trying to make themselves believe that they have what they know they have not. Why I know among my own friends—none of them are here, but there are some few in the community, who are riding in limousine cars that cannot afford the price of a wheelbarrow and all because gasoline to some nostrils smells like a bank account.

"I know a woman who goes home in a taxi and then borrows a quarter to start the gas meter. There are those, of course, that want the real coin and they strive to get it at any cost, and as Donald G. Mitchell says, they economize by denying themselves what they want while young, that they may have that that they don't want when they are old."—*Charles F. Moore,* Editor of "Paper."

BORROWING AND CREDIT.

"Credit is like some people you and I know; it is always hanging around where it is not wanted and it is never on hand when you want it. The man who is penniless and hungry has trouble to negotiate a loan sufficient to buy a sandwich. But if perchance he becomes possessor of a vast estate tomorrow, then every idle dollar in the community is thrust upon him to use on his own terms and return it when he gets ready. I know what I am talking about, because I have had occasion to investigate this subject."—*Charles F. Moore,* Editor of "Paper."

Section on Scientific Papers

Papers Presented at the Fifty-Ninth Convention

THE CULTIVATION OF MEDICINAL PLANTS AT THE COLLEGE OF PHARMACY OF THE UNIVERSITY OF MINNESOTA.

EDWIN L. NEWCOMB.

The Medicinal Plant Garden of the College of Pharmacy of the University of Minnesota was designed primarily to facilitate and make more comprehensive the instruction in Pharmaceutical Botany and Pharmacognosy. It furnishes one of the essential means of giving instruction pertaining to the vegetable drugs or their preparations. The proper development of such a garden gives the student an excellent idea of the origin of vegetable drugs and not infrequently is the cause of the production of botanical enthusiasts, which all pharmacists should in reality be. The teaching of pharmaceutical botany and pharmacognosy without a medicinal plant garden is not comparable in efficiency with that supported by an adequate drug garden. With such an accessory the students are soon impressed with the distinguishing characters of such families of plants as the *Compositae, Solonaceae, Umbelliferae,* etc., and they are quickly able to identify such plants as *Digitalis purpurea, Verbascum thapsus, Inula helenium, Hyoscyamus niger, Atropa Belladonna,* etc.

While it is true that the growing plant which ultimately yields the drug usually presents an entirely different appearance from the drug itself, this need not mitigate against or complicate the instruction. It rather facilitates it, for a thorough knowledge of the characters of the plant will insure a quick eye to identify the cured product or to detect inferiority in it, and familiarity with the plants soon removes most trouble with nomenclature.

With the decided advantages which such facilities afford in giving instruction in pharmacy courses, it seems strange that so few colleges in this country have up to this time established independent medicinal plant gardens. A number of institutions are so situated that they have access to botanic gardens where many medicinal plants may be found growing. This association, good as it may be, does not meet the urgent need of a medicinal plant garden in close proximity to and under the direct supervision of the college itself.

It is now nineteen years ago that Dean Wulling, realizing the need of such a garden, asked the Board of Regents of the University for a tract of ground and funds to establish medicinal plant cultivation. About fourteen years ago a plot of ground was granted, but no funds were available and hence nothing apparent was accomplished at this time at the college, but Dean Wulling started a garden on a small scale at his home, which, however, he soon after abandoned principally

because of lack of time and area. In the fall of 1910 an appropriation was secured for the establishing of a medicinal plant garden and late this spring the ground which had been granted some fourteen years ago was plowed for the College of Pharmacy and actual work begun.

The garden is admirably located and of about forty thousand square feet in area immediately adjoining the building occupied by the College of Pharmacy. It represents part of the University campus which some time ago was a shallow basin, but which has been filled in during the past few years. On this account the soil is quite varied consisting mostly of light sandy loam with a coating of peat. The plot is surrounded on all sides by buildings which afford considerable protection. After the ground had been plowed and thoroughly harrowed it was staked out into plots of convenient size and shape, for the most part 10 x 18 feet. A few beds of more ornamental design were prepared as the garden was to occupy a rather conspicuous location on the campus.

The question which has frequently been asked in connection with medicinal plant cultivation is, "Where can the seed or plants be obtained to make the start?" Many of our medicinal plants are used as ornamentals and hence American and European seed dealers are able to supply a certain amount of the desired seeds. In case the drug consists of the seed or fruit this, if not too old, may furnish a very valuable means of starting the work of propagation. Samples were taken from the drug collections at the College of Pharmacy of some fifty-eight different drugs and of these thirty germinated, giving in a short time a supply of plants yielding these drugs. This experiment disclosed a rather valuable test for the identification of certain seeds drugs. A sample of *Delphinium consolida* on two germination tests showed the presence of ten per cent. of the seed of an entirely different plant. So close was the similarity of the two seeds that the adulterant would go undetected unless a microscopic examination was resorted to. The reason for the germination of only fifty per cent. of the various seeds tested was probably due to either or both of two causes: first, the age of the seed; and second, injury to the vitality in preparation of the drug.

Among the seeds taken from the drug collection which grew and furnished strong plants may be mentioned those of *Atropa Belladonna, Delphinium consolida, Conium maculatum, Pimpinella Anisum, Coriandrum sativum* and others from the *Umbelliferae, Delphinium Staphisagria, Citrullus Colocynthis, Datura stramonium, Hyoscyamus niger and Lobelia inflata.*

Seeds of the above plants and some fifty others were purchased from New York seed dealers and started in the greenhouse about February 17th. Among the seed sown at this time were those of the following plants: *Inula helenium, Capsicum spec., Arnica montana, Glycyrrhiza glaba, Cytisus scoparius, Carthamus tinctoria, Lavandula spec., Passiflora incarnata, Matricaria chamomilla, Coix lachryma, Datura metelloides, Rheum palmatum, Ricinus spec.,* twelve varieties of *Digitalis* and many others.

Most of the seed germinated in from one to two weeks and the method of handling the seedlings being much the same in each case, a description is here given of *Digitalis.*

After carefully preparing the soil which was of a good rich light moist loam containing a large amount of well-rotted sod and leaf mould, it was placed in

four or five-inch flower pots supplied with a few pieces of broken pot for drainage. The soil should be lightly pressed down so that the surface is smooth and quite firm. The seed were then spread over this prepared surface and covered with the same soil, to which about forty per cent. of sand had been added. The seeded pots thus prepared were thoroughly watered with a rubber bulb sprinkler which does not wash the soil. Each pot was covered with a plate of window glass to retain the moisture. In the preparation of the soil it is important to select that which is as free from weed seeds as possible.

Digitalis lutea, Digitalis lanata, Digitalis grandiflora and Digitalis ferruginea gigantea required from thirteen to fifteen days to come up, while *Digitalis purpurea rosea, Digitalis purpurea maculata superba, Digitalis purpurea gloxiniaeflora alba, Digitalis purpurea monstrosa* and *Digitalis purpurea alba* all germinated in from nine to thirteen days. In from two to three weeks the plantlets were well started having one or two pairs of leaves. At this time they were transplanted into flats (shallow boxes about three inches deep and preferably eighteen by twenty-four inches in area). The same rich finely pulverized soil was used here as in the planting of the seed. The plants were put about two inches apart each kind in a separate flat and the soil firmly pressed about the roots. When the plants became crowded in the flats they were transplanted into two and one-half or three-inch pots.

The next step was that of hardening off the plants before final planting. This was done by placing them outside in cold frames for the early part of May, glass being kept over them all the time for the first few days and then gradually withdrawn. The plots in the garden were worked over with a spading fork and the plants put in rows eighteen inches apart each way. About twelve hundred plants of the different species of *Digitalis* have been handled in the above described manner, the outside planting taking place from May 20 to June 20. The plants in the first beds put out have made a remarkable growth and the ground is covered with the beautiful rich green foliage.

In addition to the large number of plants started from seed, some plants were purchased, representing trees, shrubbery and hardy perennials from which drugs are obtained. The seed of over four hundred medicinal plants were imported and a large number of these are under cultivation, others are being put in as rapidly as the ground can be prepared.

A hedge of *Rhamnus catharticus* has been planted on the west and south sides of the garden. Within this are border beds filled with more or less tall growing annuals or perennials as *Inula helenium, Ricinus species, Hibiscus militaris, Borago officinalis, Atropa Belladonna, Martynia proboscidea, Datura stramonium* and *Helianthus annus.* At the north end the border widens out into a broad plot which is filled with *Papaver somniferum, Salvia officinalis, Nicotiana tabacum, Salphiglossis, Canna, Thymus vulgaris, Lavendula vera* and others. At intervals of twenty feet along the border such trees as *Ulmus fulva, Xanthoxylum americanum, Juglans nigra, Salix alba, Quercus alba,* etc., have been planted. These outside beds are bordered with *Digitalis spec., Cineraria maritima, Dianthus spec., Impatiens balsamina* and *Antirrhinum majus.*

A large plot has been laid out at the south end of the slathouse and here may be found growing an interesting group of evergreens and other plants closely

related botanically as *Larix Europoea* and *Salisburia adiantifolia*, the Japanese Ginkgo tree. Between the trees a collection of the plants which yield our common pot herbs have been temporarily located, including *Ocimum Basilicum, Hyssopus officinalis, Melissa officinalis, Majoranum hortense, Origanum vulgare, Tanacetum vulgare*, etc. Along the south side of the slathouse various varieties of *Vitis vinifera* have been put in to afford additional shade. Between these *Citrullus Colocynthis* was planted.

The slathouse, a structure one hundred feet long, twenty feet wide and seven and one-half feet high, extends along the east side. A collection of shade loving plants have already been obtained, including *Cimicifuga racemosa, Podophyllum peltatum, Hydrastis canadensis, Geranium maculatum, Sanguinaria canadensis, Spigelia marilandica, Aspidium species, Cypripedium spec.*, and many others. A long bed is laid out along the front of the house and here different species of the following genera have been planted: *Luffa, Momordica, Citrullus, Convolvulus, Bryonia, Cucurbita* and *Cucumis*. In addition to these climbers such perennials as *Clematis, Humulus, Ampelopsis, Solanum, Wistaria, Aristolochia* and *Pueraria* species are to be found. The entire length of the bed is bordered with Digitalis species and there is also a fine display of *Cannabis gigantea, Cannabis Americana, Foeniculum vulgare* and *Zea Mays* varieties.

The largest portion of the garden is laid out into the rectangular plots previously referred to. Of these the following are deserving of special mention:

Plot No. 4 is planted to *Conium maculatum*. This plant has done remarkably well. Several of the specimens now in blossom have attained a height of over four feet.

Plot No. 6 contains *Ricinus communis* var. *minor* and var. *major* as well as a number of other species. The seed sold as drug appears too often to be a mixture of seed from the different species of Ricinus.

Plots Nos. 8, 12, 13, 16, 28, 48, 49, 61 and 62 are filled with different varieties and species of Digitalis and it is hoped that some work can soon be done concerning the factors which influence the potency of the official drug.

Plot No. 14 contains *Aconitum napellus, A. Lycotonum* and *A. Fischerii*, also *Delphinium staphisagria* and other species of Delphinium.

In plot No. 17 may be found *Capsicum frutescens* and other species of capsicum.

Plot No. 20.—*Sinapsis nigra* and *Sinapsis alba*.

Plot No. 24.—*Coriandrum sativum*, the drug purchased in the open market was used to plant this bed. The plants have made a fine growth and give promise of fruiting long before frost.

Calendula officinalis fills No. 25, a plant exceedingly easy of cultivation and producing a profuse number of flowers.

Plot No. 26 contains *Matricaria chamomilla*. This bed is now a mass of the beautiful little white daisies and, like calendula, is very easy to grow.

In plot No. 27 are twelve plants of *Datura metelloides*, which cover the entire 160 square feet devoted to them and present a magnificent sight in the evening when their large pure white odorous flowers expand.

Nicotiana repanda yielding Havana tobacco and *N. tabacum*, yielding the so-called Pennsylvania and other commercial varieties of tobacco, are growing luxuriantly in plot No. 30.

A fine group of *Atropa Belladonna* seedlings are found in plot No. 31, as well as a few flowering plants.

Plot No. 36 contains such xerophytic plants as *Aloe spec., Agave Americana, Cactus grandiflora and Euphorbia pilulifera,* the border consisting of *Echeveria spec.*

Plots Nos. 39 and 56 are filled with such cereal yielding plants as *Avena Sativa, Hordeum sativum, Triticum sativum* and *Secale cereale.*

Three varieties of Hyoscyamus are being studied, namely, *H. niger, H. albus* and *H. pictus.*

Several plots throughout the garden were assigned to drug yielding shrubs. Some fifty of these have been planted, including *Viburnum opulus* and other species, *Chionanthus Virginica, Hydrangea arborescens, Berberis vulgaris, Cornus stolonifera, Sambucus canadensis, S. nigra, S. pubens, Prunus serotina, Prunus Virginiana* and *Euonymus atropurpureus.* Between the shrubs hardy perennials have been planted, such as Monarda species, *Helenium autumnale, Iris spec.,* yielding Orris, *Phlox spec., Paeonia officinalis, Yucca filamentosa,* etc.

On five of the plots cold frames covered with sash were constructed. Many plants were started in these and they will be used again this fall for giving slight protection to certain plants during the winter.

Over one-half of the medicinal plants yielding official drugs are already under cultivation and more are being continually added. Of those which do not yield official drugs the number is much larger and it is planned to add representative specimens as rapidly as possible of all drug yielding plants, some of which necessarily must be conserved in the greenhouse.

The general plan in developing the garden has been to keep different species of plants belonging to the same family in beds of close proximity. This was followed out to a certain extent, but until soil conditions can be produced as desired in each plot the plan will not be entirely feasible. Such an association of plants greatly enhances the value of the garden in giving instruction in pharmaceutical botany.

The effect of different soils, moistures, etc., on the constituents of certain plants is being carefully observed and it is hoped that some valuable pharmacophysiologic work can soon be accomplished.

PERMANENCE OF SOME ASTRINGENT PREPARATIONS.

WILBUR L. SCOVILLE.

In March, 1908, a series of fluidextracts of drugs which contain considerable amounts of tannin was prepared for the purpose of studying the stability of the tannin in such preparations. Each was freshly made and was tested as soon as possible after finishing.

The Loewenthal method of estimating tannin was first tried. With some the results were satisfactory, so far as the operation of this process is concerned, but with others it was impossible to get any end-point and this method was abandoned. From this and subsequent experiences the writer believes that no one method

can be applied satisfactorily to all kinds of tannin containing material, because tannin, as the term is used, stands not for a definite substance but for a class of substances, ranging from chlorogenic acid to true tannic acid. For specific kinds of tannins, as for the treatment of leather, tests which are adapted to that purpose can be made very satisfactorily, but it will be readily understood that for other kinds of tannoid bodies, such a test may entirely fail.

After some study and experimentation it was decided to use two methods, found in Allen's Organic Analysis, 3rd edition, Vol. III, Part I.

The first method, devised by F. Jean, consists in matching the color produced with a weak solution of ferric chloride and a tannic acid solution of known strength, with a dilution of the fluidextract under examination. As in all colorimetic processes this will vary not only with the personal equation, but in different lights, and with colored solutions.

The fluidextracts were each diluted 1 Cc. to 99 Cc. of water for this test. When fresh, each produced a marked cloudiness with water, but after aging some mixed clear with water and all were more miscible than at first. It was not thought best to clarify these solutions any further than by simple filtration through paper, so in the earlier tests a greater degree of cloudiness was contended with than in the later tests. This will account in part at least for the higher results often obtained by this method on the preparations after they had stood for a time.

It is scarcely necessary to point out that this method will estimate not only tannins, but also gallic acid (if present) and any principle that will give a dark color with ferric chloride.

It has, however, the advantage of rapidity, and for tests in series on the same liquid it may be expected to show whether any marked changes have taken place in these principles on standing.

The second method, devised by Collin and Benoist, aims to measure the amount of weak tannin solution required to precipitate all of the gelatin from a definite gelatin solution. The end-point on this method is found in the disappearance of a blue color which is added to the gelatin solution, and is aided by the appearance of the precipitate.

In this process much depends upon close attention to certain details—more, in fact, than was realized in the earlier tests. The gelatin solution must be very hot (80° C), the tannin added very slowly and mixed quickly, and the reaction of both solutions must be alkaline, but faintly so. Since alkalies split up tannins, this last is a fatal point for very accurate work, particularly with colored solutions.

The process, however, distinguishes between tannic and gallic acids, and excludes also other principles which give a dark color with ferric chloride. It thus serves as a check upon the first process.

It may be charged that two inaccurate processes cannot make an accurate one. This is certainly true, and the most that can be claimed for the results given below, is that they may show whether marked changes have occurred in the preparations during the three years that they have been kept, with a fair degree of certainty.

The writer wishes to state that his respect for tannin estimations has not been increased any by this work, and that while, in the light of an accumulated experience more uniform results might be obtained by a repetition of the work, yet a liberal allowance would need to be made for results, by these methods.

The results in the following table are expressed in percentage as a matter of clearness and convenience, but it is highly improbable that the percentages represent actual proportions of tannin. In each series, blanks were used with a solution of pure tannic acid of known strength, and the calculations based upon the figures obtained at the time, but the results with pure tannic acid varied. Differences in the light will account for variations in the first process, and differences in the gelatin solution and in alkalinity will account for the variations in the second process.

	March, '08		June, '08		Dec., '08		June, '09		Dec., '09		Dec., '10		April, '11	
	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B	Jean	C&B
Bayberry	8.6	19.0	8.6	12.5			8.0	11.0	9.0	18.0	9.0	17.0	7.5	13.0
Blackberry ..	8.0	11.8	8.0	5.5	8.7	5.0	8.0	5.3	7.5	6.0	8.2		7.5	2.8
Chestnut Leaves	7.05	7.7	7.05	5.5	7.7	5.5	5.7	5.4	6.2	5.1	6.4	5.0	6.0	2.2
Geranium ...	4.3	10.5	6.0	6.8	6.0	5.5	6.0	6.0	5.7	6.0	2.4	2.5	*	
Gambir, Tr...	0.92	1.3	1.0	0.6	1.0		1.0	0.64	0.91	1.2	0.85	0.75	0.96	0.90
Jambul	8.0	11.1	8.0	6.3	7.8	5.2	5.7	5.0	7.4		6.4	6.0	6.5	3.8
Kino, Tr.....	1.1	2.4	1.3	2.5	1.3	2.0	1.2	1.8	1.3	2.0	1.3	2.0	1.3	2.2
Logwood	6.6	6.3	6.6	5.0	6.6		5.7	3.2	5.5		6.3	3.0	5.0	2.2
Nutgalls, U. S. P.....	17.1	10	17.1	10	16.6	8.7	16.0	8.3	13.0		15.0		13.3	7.4
Nutgalls, aqueous ...	17.1	15	10.0		9.0	00								
Rhatany	6.0	21	6.0	6.8			5.3	5.6	4.2	5.5	4.1	5.5	2.0	1.8
Rose	12.0	19	12.0	6.5	10.5		10.6		12.0	11.2	12.3	12.0	12.0	5.0
Sumac	6.0	7.5	6.0	3.4	5.5	3.3	5.0	2.6	4.5		3.0		3.2	
Uva Ursi	7.0	9.0	7.0	5.0	7.1	3.3	8.0	2.8	8.0			00		00
White Oak...	5.0	10.5	5.0	6.4	5.0	4.7	5.0	6.0	5.0		3.7	5.0	4.0	2.8
Wh. Pond Lily	12.0	13.3	12.0		12.5	9.0	13.3	8.0	13.0		10.0	7.5	11.0	6.0
Wild Cherry.	2.7	7.9	2.0	2.2										
Witch Hazel..	6.0	9.5	6.0	3.9	5.9	2.2	5.0	3.8	4.6	1.2	4.5		4.6	

*Gelatinized.

It will be noticed that the results by the gelatin process on the first assay are usually much higher than on subsequent tests—usually about twice as high as the second test. Since the gelatin solution was prepared fresh each time, I cannot account for this except on the supposition that some change takes place in tannin solutions very quickly. And since the U. S. P. Nutgall fluidextract is the only one that is made without water in the menstruum, and the aqueous fluidextract of Nutgall corresponds in this respect to the other preparations, it would seem that a hydrolysis takes place. This is further borne out by the fact that the preparations which are weakest in alcohol (Chestnut, Uva Ursi, Wild Cherry and Witch Hazel) show the most rapid change.

Indeed, the most profitable suggestion from this study is that tannin preparations should be strongly alcoholic in order to be permanent, and conversely preparations which are undesirably astringent may be rapidly freed from tannin by using a weakly alcoholic menstruum. Thus a fresh fluidextract of Wild Cherry is strongly astringent, but after standing a few weeks it will lose most of this astringency and become more miscible with aqueous fluids.

Glycerin does not appear to hinder or prevent this change as does alcohol, the aqueous fluidextract of Nutgall being made with a menstruum of 60 per cent. glycerin by volume.

The physical conditions of the fluidextracts at the end of three years are interesting.

The fluidextracts of Bayberry, Logwood, Nutgall (U. S. P.) Sumach, Rhatany, White Oak and White Pond Lilly and Tinctures of Gambir and Kino are nearly clear or contain only a very slight precipitate. Fluidextracts of Bayberry and Rhatany show no precipitate but they seem to have thickened a little and suggest the gelatinizing process.

Fluidextracts of Blackberry, Chestnut, Jambul, Aqueous Nutgall, Rose, Uva Ursi, Wild Cherry and Witch Hazel have precipitated badly, and in most cases the precipitate has caked together. Fluidextract of Geranium gelatinized after about two years.

Of the nineteen preparations, Tinctures of Gambir and Kino, and Fluidextract of Nutgall are the only ones in which no material change is evident in three years.

Fluidextracts of Bayberry, Blackberry, Chestnut, Jambul, Logwood, Rhatany, Rose, White Oak and White Pond Lily kept well for two years, but signs of deterioration now appear in these, though positive conclusions should not be drawn from the last tests. No positive conclusions are drawn for these preparations.

Fluidextracts of Geranium, Aqueous Nutgall, Sumac, Uva Ursi, Wild Cherry and Witch Hazel show an unmistakable loss of astringency, and mostly within a year. Geranium kept about two years then gelatinized—and it will be noticed that the tests within three months of gelatinizing showed a marked and sudden reduction in tannin. Aqueous Nutgall shows evidence of the tannin rapidly changing to gallic acid.

Wild Cherry loses its astringency quite rapidly; Sumac, Uva Ursi and Witch Hazel more slowly.

Gelatinization does not take place until the tannin is all changed, and a preparation which will gelatinize finally may have lost most of its astringency without changing its physical appearance. Precipitation may occur to a considerable extent without loss of astringency. But the use of strongly alcoholic menstruum for astringent preparations is strongly suggested.

Two fluidextracts of Cinnamon were included (Cassia and Ceylon Cinnamon) in the investigation, but the estimation of tannin in the fresh preparations was so unsatisfactory that definite records could not be obtained. Evidently the tannoid bodies in Cinnamon are not true tannic acid.

LABORATORY OF PARKE, DAVIS & CO., DETROIT, MICH.

ANETHOL VS. OIL OF ANISE.

OTTO RAUBENHEIMER.

The question whether Liquor Ammonii Anisatus, a much used galenical which is to be admitted into National Formulary IV, should be prepared with anethol or with oil of anise, a question which has caused quite some arguments in our National Formulary Committee, prompts me to bring the same up before the Scientific Section for discussion.

Liquor Ammonii Anisatus, official in most of the foreign pharmacopoeias, is a solution of 1 Gm. anethol or oil of anise in 24 Gm. alcohol with addition of

5 Gm. ammonia water. The latter is of 10 per cent. strength and is not the stronger kind, as has been misinterpreted from the foreign official title liquor ammonii causticus, and to which error the author has called attention on numerous occasions.

OIL OF ANISE.

It is the volatile oil distilled from anise, the fruit of *Pimpinella Anisum*, L. It is thus defined in the seventh decennial revision (1890) of the United States Pharmacopoeia and in the foreign pharmacopoeias. Unfortunately, this definition was changed in United States Pharmacopœia VIII to also include the oil of star anise, the fruit of *Illicium verum*, Hook-fil. The British Pharmacopoeia is the only other standard which gives the same definition and includes both oils under the same official title Oleum Anisi.

The Codex Medicamentarius Gallicus or Pharmacopée Française, 1908, contains two separate monographs under the French titles "Essence d' Anis" and "Essence de Badiane" and the Latin titles "Oleum Anisi Aethereum" and "Oleum Anisi Stellati Aethereum", respectively.

DIFFERENCE BETWEEN OIL OF ANISE AND OIL OF STAR ANISE.

There is a marked difference between these two oils, and I greatly doubt the advisability of including both under the official title "Oleum Anisi".

1. *Difference in Name.*—The oil of anise from Pimpinella Anisum is known as Russian oil, because that country is the market for anise seed for the distillation of the oil. The oil of star anise from Illicium vērum is generally known as Chinese oil of anise, being imported from southern China and Tonkin.

2. *Difference in Chemical Constituents.*—The two anise oils should contain from 80 to 90 per cent. anethol, to which the characteristic anise-like odor and sweet taste are due. Methyl chavicol, a liquid isomer of anethol, having its odor but not its sweet taste, is another constituent. The two together, with traces of oxidation products as anisic aldehyde and anisic acid, are the constituents of the oil from Pimpinella Anisum.

Star anise oil also contains the terpenes d-pinene and l-phellandrene and traces of the ethyl ether of hydroquinone. According to Oswald,[1] it also contains safrol, while Tardy[2] states that it contains terpineol, a laevorotatory sesquiterpene, and a body melting at 213° C.

In order to corroborate these statements, and in view of the knowledge which has been gained in the chemistry of terpenes in recent years, Schimmel & Co. have made a thorough investigation,[3] and report that star anise oil, in addition to its previously known constituents, also contains: p-cymene, cineol, safrol and terpineol. The phellandrene present was found to be a mixture of l-, a-, and b-phellandrene.

3. *Difference in Physical Characteristics.*—Oil of star anise generally has a

[1] Archiv. der Pharmazie, Vol. 229 (1891), 95.

[2] These pour l'obtention du diplome de Docteur de l'Universitè de Paris (1902), abst. Schimmel's Report, October, 1902, 79.

[3] Schimmel's Report, April, 1910, 99-101.

lower solidification point than the Russian oil, a fact which was also recognized in the resolutions of the second international Congress of the White Cross Association for suppressing the adulteration of food stuffs, chemical products and drugs, held in Paris, October, 1909.

Oil of star anise is sometimes slightly dextrorotatory,[4] while the Russian oil always has a rotation to the left. But the principal difference lies in the odor and taste, as the oil of star anise never has the sweet anise odor and taste of the Russian oil, and for that reason it is distinctly inferior. The French Codex in the description of Essence d'anis states "saveur sucré," which property, however, is not mentioned under Essence de Badiane.

4. *Difference in Price.*—The Russian oil is always more expensive. I find it quoted at $2 per pound, while the Chinese oil is quoted at only $1.40.

Besides these differences, there are two more facts to be taken into consideration:

a. *Adulteration and Sophistication of Oil of Star Anise.*—This oil, being imported from China or Tonkin, is very prone to be adulterated. Lately the English chemists and authorities on essential oils—Parry,[5] Ummey[6] and Jensen[7]—reported that Chinese oils of low specific gravity and low congealing point were adulterated with some fraction of camphor oil. Evans Sons, Lescher and Webb, Lim.,[8] have reported the same. Schimmel & Co.[9] find that a low specific gravity and low solidification are due to the abstraction of anethol.

Japanese oil of star anise, which is distilled from the leaves, contains only 25 per cent. anethol, besides terpenes, eugenol and safrol.

b. *Substitution of Oil of Star Anise for Oil of Anise.*—This is undoubtedly very common. The similarity in name, the difference in price, and last, but not least, the unfortunate fact that both are official in United States Pharmacopoeia VIII under the same title, are responsible for this substitution.

The National Standard Dispensatory, 1905, states on page 1058: "The substitution of star anise oil for anise oil is not regarded as adulteration. Fair dealing, however, demands that both oils be sold under their proper label." Our National Formulary, and even its forerunner, the New York and Brooklyn Formulary, makes the following statement under Elixir of Anise, which statement still holds good today: "Oil of star anise, which is usually supplied by dealers when oil of anise without specification is ordered, does not answer well for the preparation of aniseed cordial."

From these remarks it can be readily understood that we are greatly in need of a uniform body in place of the variable oil of anise in the market. And we have the same in anethol, the stearopten or oxygenated constituent of oil of

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[4]Schimmel's Report, April, 1908, 139.

[5]Chemist and Druggist 77 (1910), 687.

[6]Perfumery and Essential Oil Record 1 (1910), 236.

[7]Pharmaceutical Journal 85 (1910), 759.

[8]Analytical Notes, 1910, 9.

[9]Report, April, 1911, 108-110.

anise. Our committee on stands of unofficial drugs and chemical products under the chairmanship of George M. Beringer, has prepared the following description, standards and tests:

ANETHOLUM.

Anethol.

$C_{10}H_{12}O = 148.096$.

The methyl ether of para-propenyl-phenol, C_3H_5 (1) $C_6H_4OCH_3$ (4), constituting the main constituents in oil of anise, star anise and fennel and obtained by fractioning, chilling and crystallizing. It should be kept in well stoppered, amber-colored bottles, protected from light and air.

At ordinary temperature anethol is a colorless or faintly yellow, highly refractive liquid, having a sweet taste and the aromatic odor of anise. At +21 to +22° C. it solidifies to a white glistening, crystalline mass, which remelts at 22° to 23° C. Specific gravity 0.984 to 0.986 at 25° C. Boiling point 232° to 234° C. Its refraction index is 1.56 at 20° C. It should be optically inactive, or show a deviation of not over 0.08° in 100 mm. tube at 25° C., due to slight traces of the oil from which the anethol has been prepared (if from anise oil this deviation will be lævogyrate, if from fennel oil dextrogyrate).

Anethol is almost insoluble in water, readibly soluble in ether or chloroform, and makes a clear solution with two volumes of alcohol or two to three volumes of 90 per cent. alcohol at 20° C. 10 Cc. of anethol shaken with 50 Cc. of saturated solution of sodium bisulphite in a graduated cylinder and allowed to stand for six hours should show no appreciable diminution in its volume nor should a crystalline deposit separate (absence of aldehydes).

What an important role anethol plays in other countries is well illustrated by the fact that it has been admitted into the following pharmacopoeias:

Deutsches Arzneibuch, IV ed., 1900;
Pharmacop. Nederlandica, IV ed., 1905;
Pharmacop. Japonica, III ed., 1905;
Pharmacop. Austriaca, VIII ed., 1906;
Pharmacop. Belgica, III ed., 1906;
Pharmacop. Suecica, IX ed., 1908; and also in the
British Pharmaceutical Codex, 1907.

The Swedish Pharmacopoeia even goes so far as making the official statement that anethol is to be dispensed in lieu of anise oil and fennel oil.

It is consequently not surprising to notice the following remarks in Schimmel's Report of April, 1907, p. 12:

"The use of oil of anise is distinctly falling off, since in anethol there is placed a product at the disposal of the consumers, the use of which in view of the *purer taste* and *greater richness* offers advantages which no one can gainsay."

While anethol seems to be quite well known, and also used in the eastern and middle sections of the United States, the discussions in our National Formulary Committee have brought out the statement that this is not the case in the western part. This is rather surprising, inasmuch, as anethol has been one of the ingredients in elixir anisi ever since the first issue of the National Formulary in

1888. The following note, which is contained in the three editions of the National Formulary, calls special attention to it:

"Anethol is the stearopten of oil of anise, and possesses a finer and purer aroma and taste than any commercial variety of oil of anise."

As has been stated, the German Pharmacopoeia IV made anethol official in 1900 and, strange to say, under the Latin title "Oleum Anisi" and the German title "Anethol". The late Belgian Pharmacopoeia gives the synonym "Essentia Anisi" under the official title "Anetholum". It goes without saying that this vice versa statement in the two standards is not correct, because anise oil and anethol are not identical, although the Russian oil now is of much better quality and has a larger anethol content than in former years. Strange to say, the fifth edition of the Arzneibuch has deleted anethol and also carvone and eugenol, and has admitted the corresponding oils in place thereof. This step, namely, the resurrection of the variable essential oils in place of their uniform active constituents, is much to be regretted, and is contrary to the policy adopted by the other Pharmacopoeias, namely to admit only the *very best*.

ADVANTAGES OF ANETHOL OVER OIL OF ANISE.

1. It is of distinct chemical composition and can be obtained practically 100 per cent. pure, while the different anise oils vary greatly in their anethol content.

2. It is always of uniform character and is the same in every case, while anise oils differ greatly, physically and chemically, according to their origin.

3. Anethol can be tested more readily and more stringently as to its quality, purity and strength.

4. It is of greater solubility, being soluble in two volumes of alcohol, while some oils of anise require five to six volumes.

5. Anethol possesses a sweeter taste and a more aromatic odor than even the very best oil of anise.

6. Anethol is also to be preferred from a therapeutic point, as it constitutes that portion of oil of anise which is the most valuable medicinally.

7. Last, but not least, its price is reasonable in proportion to its strength, and some manufacturers claim it is twice as strong as the oil. The same price list quotes the Chinese oil at $1.40, the Russian at $2, and anethol at $2.40.

As this question of anethol vs. oil of anise has arisen in connection with its use in liquor ammonii anisatus, I might also state the formula of the latter which has been proposed for the National Formulary IV under the title of

SPIRITUS AMMONII ANISATUS.

Anisated Spirit of Ammonia.

Anethol	30 Cc.
Alcohol	820 Cc.
Ammonia Water	150 Cc.
To make	1000 Cc.

The advantages of Anethol in Spiritus Ammonii Anisatus, according to my experience, and I have prepared this galenical in large quantities for a great many years, are as follows:

1. Anethol produces a clear solution, while some of the anise oils give a turbid or cloudy spirit, which forms a precipitate.

2. Anethol produces a colorless preparation, while most of the anise oils turn the spirit yellow.

I hope that this question will be well discussed by the members of the Scientific Section, and I trust that my arguments presented will be so convincing that the uniform anethol will supersede the variable oils of anise in National Formulary, and perhaps also in United States Pharmacopoeial preparations.

AN EXAMINATION OF SOME COMMERCIAL SAMPLES OF ANETHOL.

GEORGE M. BERINGER.

In connection with the work of the Committee on Unofficial Standards, it was decided to prepare a standard for Anethol, and an examination of at least several commercial samples thus became necessary.

The authorities are fairly closely agreed upon the description and tests for this article. The Ph. Germanica IV, in which it was official as Oleum Anisi, gave its melting point at +20 to +21°; the specific gravity at 25° C. 0.984 to 0.986; the boiling point 232° to 234° C., and soluble in two parts of alcohol. The Austrian Pharmacopoeia similarly states the melting point +20 to +21° C.; specific gravity 0.984 to 0.986; boiling point 232° to 234°. Parry, Chemistry of Essential Oils, gives melting point 21°; boiling point 232°. Gildemeister and Hoffman, The Volatile Oils, melting point 21°; boiling pont 233° to 233.5°; specific gravity at 25° C. 0.986. Allen, Commercial Organic Analysis, states "freshly prepared pure anethol congeals at about 21° C. and re-melts at 22.5 to 22.7° C. It is optically inactive. It undergoes oxidation on keeping." Schmidt, Pharmaceutische Chemie, states "melting point +21 to +22° C.; boiling point 233°; specific gravity at 25° as 0.985." This author also "directs attention to the fact that from long keeping in the liquid state or exposure to air, Anethol changes, and then its congealing point may be reduced to even below 0°."

While the Anethol of the European pharmacopoeias is presumably that obtained from Oil of Anise, it is the main constituent in oils of anise, star anise and fennel and may commercially be prepared from either of these. The oil of star anise probably furnishes the bulk of that in the American market. The physical characters must vary slightly with the source from which the anethol is obtained, due to slight adhering traces of the other constituents of the oil used. Within narrow limitations these affect the congealing, melting and boiling points and the specific gravity. While chemically pure Anethol is optically inactive, the commercial might show a slight dextro rotation if prepared from oil of fennel or a

slight laevo rotation if prepared from anise or star anise oils. In the establishing of a standard for the commercial article of satisfactory quality, such deviation from strict lines of absolute purity must be noted and limitation therefore fixed.

Five different samples were examined, three of these being recently procured from the agents of different manufacturers. The fourth was a sample purchased about two years before and subject to such exposure to light and air as would occur in store use. The fifth was an old sample which was at least fifteen years old but which had been kept for years in a dark closet. The results tabulated are here given:

Sp. Gr.	Op. Rotation	Congealing Point	Melting Point	Solubility in 2 Vols. of Alcohol	With Solution Na H SO_3
1—0.985	—.07	21° C.	23° C.	Clear solution	No reaction
2—0.986	+.035	20° C.	22° C.	Clear solution	No reaction
3—0.9846	Inactive	20° C.	22° C.	Clear solution	No reaction
4—1.0216	—.052	No sign of congealing at +5° C.		Clear solution	Copious crystalline separation
5—1.0045	Inactive	14° C.	15° C.	Clear solution	Slight crystalline separation

Samples No. 4 and No. 5 show the changes due to keeping as stated by Schmidt. This is an oxidation and the reaction with sodium acid sulphite solution indicates that anisic aldehyde is at least one of the resultant products of such oxidation.

COÖPERATION WITH RETAIL DEALERS.

"During the past year there has been a wonderful awakening among manufacturers in their attitude towards the retail dealer. Some of them are beginning to realize that the retailers are a real factor in the distribution of their goods; others still have this lesson to learn. For the past twenty-five years we have been telling some manufactures in the drug trade, that they were making a great mistake in not giving more attention to the retail druggists; that it was one thing to send a customer to his store, and quite another thing to have the dealer a willing advocate of his goods. Times are changing, and many more manufacturers now recognize that it is decidedly to their advantage to give the retailers their hearty coöperation.

"Such work is decidedly in line with modern business methods. Strictly speaking, the retailer is the manufacturer's agent, and it is to the advantage of these manufacturers to keep these agents posted, and to extend to them every possible assistance, so as to help the retailer increase his profits and his sales, all of which reacts to the benefit of the manufacturer."—*Pharmaceutical Era.*

Section on Education and Legislation

Papers Presented at the Fifty-Ninth Convention

THE TEACHING OF AND EXAMINATIONS IN PHARMACOGNOSY.*

HENRY KRAEMER.

While it is true in teaching that success depends in large part upon the earnestness and personality of the teacher as well as his knowledge of the subject much also depends upon the methods that are followed. It was the Aggassiz method that developed a school of clear-headed and distinguished American zoologists. Aggassiz's words, "Study nature, not books," ring true and are well worthy to be framed and hung up prominently in all laboratories. Some teachers feel that they would like to impress upon the students the facts which they have acquired or the point of view which they have attained. Others use some particular textbook and it is upon the facts that are to be gleaned from this that the student's efficiency is finally determined. A happier method is the one in which after certain fundamental principles have been mastered, the teacher draws out from the student what he observes from the specimen in hand. Of course, to the ordinary student this may be irksome as it is often difficult for him to discern the progress that has been made. It is also harder for the teacher, as in nearly every class there will be found some who are keen observers and likely to ask questions which require the teacher to admit that he does not know it all. It has usually seemed necessary in order to maintain discipline for the teacher to stick near his desk and the student to follow the exercises laid down. Happily for all concerned we are approaching a condition when it is possible for student and teacher to work together, each receiving an inspiration from the other and each contributing to the *summum bonum* of knowledge. I have in a previous paper indicated what I consider to be the principal object in the study of Pharmacognosy as it relates to the training of the pharmacist. I said then that in view of the problems that confront us and that are constantly arising, the aim first should be the attainment of a knowledge of the characters of drugs rather than a general knowledge of them. The object of a course in Pharmacognosy is, I take it, not that a student shall examine so many drugs, but that he will be able to use his eyes so that he can determine whether a drug corresponds to a description as that of the Pharmacopœia, whether the specimen is all of one kind, the quality of it, and similar practical questions when he is in business. We all know that a student usually examines but a small sample of the drug. His specimen may differ from that of his comrades in certain particulars, as in the case of Rhamnus Purshiana, and

* Continuation of a previous paper presented to this Association (see Proceedings, Vol. 56, 1908, p. 672).

this is confusing. But let him examine, say five or ten pounds of this drug, and the characteristics will be so impressed upon him that he will be able to recognize even fragments of the drug.

While at college a student cannot possibly study thoroughly all of the drugs of the Pharmcopœia and National Formulary. I am beginning to be more impressed with the foreign method of teaching, in which the study is limited to a number of important drugs, or to such drugs as those the study of which has a didactic value, and in the case of which the work is required to be well done. Let the student spend three or four hours upon each of the twenty-two important official drugs † and he will not only know these well, but he will find it comparatively easy to acquire a knowledge of other drugs under circumstances that will not make him confuse so many of them. I have in preceeding years, because of the lack of time at my disposal considered from six to ten drugs in the course of a two-hour period. The result was one of confusion to the student which was manifest in subsequent examinations. I find that students are better able to recognize crude drugs after they have handled a single lot during several hours, including the making of sections and the examination of them with the microscope.

During the session that a particular drug is being studied by the students it is a good thing to break up the monotony of the work by talking about the plant yielding the drug and if possible try having some growing specimens in a prominent place and in addition a herbarium specimen of the plant for each student. At the same time one can give some facts regarding the distribution of the plant, the history of the drug and its important constituents. In this way a student is enabled to concentrate himself upon a single drug, and thus the facts impress themselves and he acquires a knowledge of drugs in a more natural way.

Permanent mounts of drugs should be at his command for purposes of microscopic comparison. Sections, however, should be made by the student and these should not only be cross-sections but tangential—longitudinal and radial-longitudinal as well. He should keep a record of his observations and make a series of drawings illustrating what he has seen, using both the simple microscope and the compound microscope. Sufficient assistance should be provided so that a student's question may be answered and his specimens or slides examined, as he should not leave the laboratory without all doubtful points being made clear.

The powdered drug should be examined after the studies on the crude drug have been completed. It is surprising to see how the student views the whole subject after he has spent an afternoon first examining the crude drug with the naked eye and of the simple microscope, then making sections and carrying on his studies with the compound microscope, and finally working with the powdered drug. He finds that the study of powdered drugs is not so difficult and furthermore, as in the study of Belladonnæ Folia, an adulterant of Poke Leaves is more readily determined in a powdered drug than in the crude drug. He finds as a matter of fact that one of the simplest methods in the examination of a num-

† The following are the drugs that I include in the list of the 22 most important drugs of the Pharmacopœia: Acacia, Aconitum, Belladonnæ Folia, Cantharis, Capsicum, Cinchona, Cinchona Rubra, Digitalis, Ergota, Gentiana, Ipecacuanha, Jalapa, Lycopodium, Nux Vomica, Opium, Podophyllum Quassia, Rhamnus Purshiana, Rheum, Senna, Sinapis Nigra, Strophanthus, Zingiber. Of course, there are a few other drugs that might be considered equally as important as some of these by some teachers.

ber of drugs, that may seem to be of good quality is to take five or ten grams of the material selected from various portions of the lot, powder it in a small mill and examine the powder under the compound microscope I have seen students again and again find Poke Leaves in a sample of Belladonna Leaves that otherwise would have been pronounced of good quality. While we require students to make a permanent collection of the specimens of crude drugs which are furnished them for study, I feel that the time is at hand when we should require them to make a permanent collection of microscopic slides, illustrating these twenty-two important official drugs. As the compound microscope can be had at such a reasonable figure at the present time I think that every thing should be done to encourage students to invest in this piece of apparatus which is indispensable not only in detecting adulteration, but also in determining and establishing confidence in reliable jobbing houses.

EXAMINATIONS.

After the student has taken up the practical studies of vegetable drugs and has concentrated his attention on the most important of those that are official, the question is what tests shall be applied to determine his qualifications to be a safe pharmacist. Of course, the professor has the advantage of seeing the student day after day, and if he has been faithful in attendance and has conscientiously carried on the work the teacher must know his general ability after the entire course of instruction. Usually, however, an examination is given for the purpose of testing a candidate's knowledge of the subject But what is the test of knowledge? What is the nature of the questions that are to be asked to test the candidate's knowledge in this particular branch? We have all been familiar during our college days with men who failed in examinations and who really knew more about the subject than some of those who passed the examinations. The secret of the latter in passing an examination very often consists really in concealing from the examiner what they do not know. If this is done discreetly and the student can impress upon the examiner what he does know he will probably pass the examination. There are some examinations where this cannot be done and this is particularly true of examinations in Materia Medica as conducted in most Colleges of Phaarmacy and of Boards of Pharmacy.

In these examinations the memory test is largely relied upon. So much hinges upon giving the "Natural Orders," "Habitats," etc. The student preparing for these examinations usually uses some book in which in a series of parallel columns are given one or two words covering the information that is expected of him in the examination. Partly because the subject of the examination is so lifeless, the student has never been stimulated in his studies. Furthermore because the examination is so perfunctory the student's thoughts are seldom carried beyond these parallel columns, and he can truthfully say that the whole subject is dry and uninteresting. Besides on this account the general inference is that the subject is of little or minor importance.

Occasionally we find teachers who dilate upon the subject of the history of drugs and the countries in which the plants are indigenous but say practically nothing more of the drug than is contained in the Pharmacopœia. We find students who have had a good preparatory education who believe that in this

knowledge that they have valuable information to fit them to become retail pharmacists and usually they are very easily confused when it comes to the identification of specimens. Sometime ago I heard a judge in one of our city courts make some remarks in the course of an after-dinner address that impressed me very much. He said "the fact that you know that a certain drug is gathered in the Himalayas is not going to make you either a safe or successful druggist; you must know the nature and property of the substances you are handling and how safely to fill prescriptions and a good many other things that you only learn by experience." Any practical pharmacist knows this and yet the burden of most examinations in Materia Medica are upon questions that few teachers and examiners would pass an excellent examination upon without considerable study beforehand. While the aim of an examination before a Board of Pharmacy appears to be to test the candidate's knowledge, the college examination should be with an additional object, viz., to round out the knowledge gained during the course of instruction and give the student self-reliance and confidence in himself. It should not be with the object of getting him ready to pass the Board of Pharmacy examination as now conducted.

Now that the Boards of Pharmacy are seriously considering improving the methods of examination, it seems to me that we might well ponder upon the subject and try to look at it from the point of view of testing a candidate's fitness to practice pharmacy. In my judgment we must eliminate the idea that because a professor gives an interesting historical lecture upon certain drugs it is expected that the student will have all of this information at his fingers' ends. There are some things taught which make for the culture of the pharmacist and happy is the student who can sit under a professor that is learned and well-balanced. There is something deeper and more important to the pharmacist than this general knowledge of drugs and that is knowledge of the characters of the drugs which he handles in practice. The history of each drug is exceedingly interesting, but this does not become a real part of a pharmacist's knowledge save after many years of experience and reading which he can do without the aid of a teacher, and when his horizon has been broadened. In one sense the same may be said of descriptions of plants yielding drugs. As in the learning of a foreign language we lay the foundation by first taking up the grammar of the subject and later taking up as much reading and study of its literature as time and inclination permit, so in the study of Pharmacognosy we first take up the specific characters and properties of a drug and then follow this by as must reading and study of a general character as we are able to do. There is, however, nothing stimulating and so far as I can see it nothing useful in asking a question like the following: "Nux Vomica: (a) give habitat; (b) origin; (c) part used in medicine; (d) active principles; (e) official requirement." Ever since the days when I was a Quizz Master my conviction has been growing that questions of this type, which are asked on every hand, do more harm to the cause of teaching in pharmacy and to the development of professional pharmacy than is generally realized. Every man's knowledge must fit in this one groove. There is no individuality to be developed, no increase in knowledge expected and no vitalizing influence in either the subject as taught or the examination which follows.

The following is another type of question that is asked in certain states by the

Boards of Pharmacy and illustrates very forcibly the type of question that should not be asked: The questions for the most part being confined to unimportant drugs and specifying the reading of certain books makes it obligatory upon the candidate to determine before taking the examination the books on which the examination is based. The following is a typical example: "What dose is given in Remington's Pharmacy, Fifth Edition, of the following: Rhus Glabra, is it considered a poison? (b) What is a minimum dose of Quercus, Rhubus, Geranium? What is the common name of Convallaria? Name twenty-two incompatibles with mercuric chloride (Corrosive Sublimate). There are thirty-three. Name as the tenth edition of Potter's Materia Medica gives them. Does Potter's Materia Medica say Mercury is a tonic? Answer Yes or no. Does he say it is a poison? A purgative? From where is a Veratrum obtained? And in action, is it related to Aconite in any form? Answer Yes or No. What is the average dose of Eucalyptus as given in Potter's Materia Medica, Tenth Edition?"

In addition to the slovenly construction of the question and the veritable hodge-podge manner of associating the subjects, I think it is quite clear how questions of this kind really hinder sound pharmaceutical education. I think students are to be pitied who have to run the gauntlet of such examinations in the various states, and the wonder really is that young men of education and good training are willing to come into the ranks of Pharmacy. It is quite clear on the face of it that the examiners who ask such questions are quite incompetent to fulfill their duties.

Of all subjects that are living, interesting, full of the greatest of possibilities and of the greatest of benefit to the professions involved, there is no subject that offers such a fertile field for the teacher and that can hold the interest of the student like that of Pharmacognosy. I am quite aware that while my enthusiasm may be shared by some teachers that my point of view may not have occurred to them. However, I would say that the teaching of Pharmacognosy in its direct application to the retail druggist will prevail and if the examinations by Boards of Pharmacy bring out the practical knowledge of the candidate we will find that the student will also have attained culture and those things that constitute the professional man.

I have often thought that it would be a splendid thing if Pharmacognosists could meet together occasionally and discuss not only methods of teaching but the subject of examination questions. In order that we might improve on our work and be able to utilize the results of our colleagues in other colleges I have requested a number of professors to send me a set of model questions. I regret that there is not space for me to publish all of these at this time. One professor has written stating that as his course is entirely laboratory work it does not involve questions. This is certainly novel and I should like to know how it is done. Apparently the professor relies entirely upon the student's work during the course. I feel that really every teacher ought to know before the end of the term the standing of every student, but I feel as already stated, that an examination should be held more for crystallizing out the thoughts of the student and his knowledge gained than for any other purpose. In other words an examination should be in the nature of instruction to the student and should give him an opportunity of showing to what extent he has mastered the subject.

Professor Daniel Base has written in a spirit with which I hearily coincide, and I quote the following from his letter:

"I think State Boards would do well to confine questions in Materia Medica to the chief inorganic, vegetable and animal drugs and not ask questions about things with which the average pharmacist may have to do but once or twice in a year. The questions might reasonably involve a knowledge of botanical source, part official, when collected and why, description in correct terms, of the whole drug, drugs that resemble each other outwardly and how to distinguish them, the principal and some of the less important constituents, forms in which the drug is used, usual action of the drug, antidotes to principal poisonous drugs or their preparations, doses. I would advocate framing questions both in Board examinations and those of the college in such a manner as to test the candidate's thinking ability rather than his cramming powers. Perhaps this cannot be done so thoroughly in Materia Medica, as in Chemistry or Pharmacy, because of the nature of Materia Medica which necessitates memorizing to a greater extent than the other two subjects do. Examinations in Pharmacognosy, in addition to requiring the recognition of drugs from outward physical characters, taste, odor, fracture, chemical tests, etc., would properly require also microscopic knowledge, but I fear that the teaching and requirements in some states have not advanced to such a stage as that the Boards could be persuaded that the examinations should include microscopic work. In those advanced states in which the Boards would not hesitate to ask questions involving microscopic knowledge, I think the questions should be moderate and practical and perhaps along such lines as the following:

1. Relation between magnification and focal length.
2. Mounting of objects.
3. Familiarity with a few staining reagents, permanent and temporary.
4. Process of making a permanent mount, with two differential stains.
5. Ability to recognize and name the different kinds of cells in a section.
6. Naming the kinds of cells in a powdered drug, especially such as stone, bast, tracheids, trichomes."

One of the questions in the list submitted by Professor G. H. Janson strikes me as being very practical. It is, "In the examination of a powder, what elementary structures place it into the class barks, woods, and leaves?" Professor Albert Schneider has submitted a similar question which reads, "Name the tissues and tissue elements that are found in barks, and roots, in leaves, in seeds, in woods."

I also received a number of other lists of questions, but they did not strike me as having anything novel in them and so I do not give them at this time, although I will probably refer to them in another paper.

Professor Sayre has written in addition to sending me a list of questions some things that I feel like adding in this paper. He says, "Permit me to state that you could not get ten men to agree on any set of questions, nor to agree on the policy of making up the questions, but I venture to give you my own ideas in the limited time I have to dictate them off hand.

"In the first place, questions should have a carefully selected variety, that is, there should be a variety chosen from different classes of crude drugs. In the second place, in almost every question something should be drawn out of the student in his answers as to the microscopical and now and then, the botanical characteristics. Third, there should be sometimes added to the questions a general question rather than a specific one, such as, 'Write a paragraph or a treatise

of at least 250 words on what you know of a certain subject.' In the fourth place, I believe that examinations should represent modern thought and teaching and should include laboratory demonstrations where the student should have an opportunity to show, first, that he knows how to use the microscope, and second, that he has done microscopical work, and third, that he shall be able to demonstrate that he is familiar with certain microscopical processes. Fifth, I think that examinations in Materia Medica should be confined to well established and commonly recognized drugs."

In summarizing I may say then that in discussing this subject of the teaching and examinations in Pharmacognosy that I have not been aiming to establish an ideal, so much as to direct attention to the need of our considering our work from the standpoint of the practicing pharmacist. There are many things that every pharmacist should know and these relate especially to the specific characters and properties of the important drugs. Then there are other things which he ought to know of certain drugs and indeed should know to stimulate him in his professional work. But these are subjects that can be better handled in an oral examination than in written examinations. In Pharmacognosy we have a subject dealing with natural products and we should treat it in a natural way, instead of according to hard and fast lines involving the framing of questions in the form of riddles or conundrums which depend for their solution upon so much memorizing rather than clear thinking and direct study of the drugs themselves as we do in the study of other physical objects.

CHURCH FAIR PROGRAMS.

"When the unfortunate committee lady, to whose lot it has fallen to solicit advertising for the program, calls at your place and makes her timid request, don't freeze up. This is where the advertising begins and it's up to you to get all the benefit you can out of it. Get interested—ask the lady about her success so far—look the dummy over carefully and see what spaces are sold and to whom. Note a position that will not be in juxtaposition to anything incongruous. Tell madame that you will take a modest space under certain conditions. You have a cold cream, perhaps, that you want to push the sale of. You will take a certain space which you indicate, to advertise that article, if the ladies will accept payment in the goods. Explain that the cold cream can be readily turned into money by putting it on sale on one of the tables at the fair. People seeing it there will imagine that you donated it and this will add further to the good will which will accrue to you from the transaction. The ladies have not been refused—your goods will have been given display at the fair, and those who buy there will buy more of you very likely. The cost has not been as great as if paid in cash and yet your benefits are greater. Instead of handing out the amount in cash and feeling that you have been robbed of your money by a piece of genteel blackmail, go at it in this way and make it a benefit to you."—A. W. Rideout in *Practical Druggist.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Fifty-Ninth Convention

THE COLOR OF TINCTURE OF IRON CITRO-CHLORIDE.

OTTO RAUBENHEIMER.

The writer does not wish to go into the chemical composition of iron citro-chloride, which has already been done by Prof. A. B. Stevens at the New York City meeting of the A. Ph. A. in 1907 (Proc. Vol. 55, p. 153), and again lately before the American Chemical Society.

Suffice it to state that the "tasteless tincture of iron" was introduced by Mr. J. L. J. Creuse, a Brooklyn pharmacist, in 1873, and after his death was manufactured for the widow by one of our members, Mr. J. D. Aug. Hartz, of College Point. Mr. Edw. Klein, the present owner of the Hartz pharmacy, was good enough to send me a sample of the Creuse preparation, prepared July 17 ,1904, herewith submitted. I am also informed that Mrs. Creuse has discontinued supplying the market.

The color of tincture of iron citro-chloride (and this is the subject of my paper) is by no means uniform, as can be readily seen by the array of samples. As this tincture is mostly used in the preparation of elixir of iron, quinine and strychnine N. F., the very popular I. Q. & S., and as the beautiful green color of this elixir depends upon the color of the tincture, it is therefore a necessity to look into the cause of the variation. The N. Y. and Brooklyn Formulary ordered, for one pint of the finished product, 2100 grains of citric acid to be dissolved in boiling water, and 2270 grains of sodium bicarbonate to be gradually added, and when effervescence has ceased, 4 fluidounces of solution of iron chloride to be added. When cool sufficient water is added to make 12 fluidounces, and finally 4 fluidounces of alcohol.

In calculating the quantities, I find that sodium bicarbonate is deficient in this formula, as it takes 2534 grains (instead of 2270 grains) to form 3554 grains of U. S. P. sodium citrate. Perhaps this may have been intentional in order to have an excess of citric acid in the finished preparation.

In the N. F. I., 1888, the formula was changed by dissolving 7 troy ounces of sodium citrate with the aid of a gentle heat in a mixture of solution of iron chloride and water. The quantity of sodium citrate in this formula is only 3360 grains, quite a reduction from the theoretical 3554 grains. In the N. F. II, 1896, practically the same formula appears in the metric system; namely, 460 Gm. sodium citrate for 250 Cc. solution of iron chloride for 1000 Cc. finished tincture. However, the quantity of sodium citrate was again reduced to 410 Gm. in the later copies of the N. F. II. As the U. S. P. VIII decreased the strength of the

solution of iron chloride from 37.8 per cent. of crystallized ferric chloride to 29 per cent., consequently N. F. III, 1906, orders 350 Cc. of the solution representing the same strength as the 250 Cc. of the second edition.

The quantity of sodium citrate ordered by N. F. III is 410 Gms., which, however, has been increased to 425 Gm. in the Errata of March 15, 1907.

I will also mention that with all these changes, the strength of the "tasteless tincture of iron" has remained the same; namely 4 Cc. containing the equivalent of 0.5 Gm. of anhydrous ferric chloride.

When a formula is changed or modified in any edition of our standards as U. S. P. and N. F., then it proves beyond doubt that it does not produce a satisfactory preparation. And such is the case in tincture of iron citro-chloride. The submitted samples have been procured from retail pharmacists, from wholesale druggists, and also include some of my experiments. In order to facilitate comparison I have put them in bottles of the same size and shape. As can be readily seen, the color of this tincture ranges from a light or bright green to an apple green, to an olive green, a brownish and reddish green to a yellowish brown.

What is the cause of this great color variation? In order to determine it, and in order to get a uniform preparation, the writer has experimented for several years. The literature on this subject is very meagre indeed, as the books have nothing to say on it, and even that excellent "Digest of Comments on U. S. P. and N. F." does not mention "Tinctura Ferri Citro-chloridi" so far.

Dr. E. H. Squibb (Bullet. A. Ph. A., Sept., 1908, p. 280), recommends that the 425 Gm. of sodium citrate in the N. F. formula be replaced by 390 Gm. of potassium citrate, which will prevent the crystallization commonly complained of in making elixir of iron, quinine and strychnine. In answer to this criticism, I beg to state that during my own experience of manufacturing several hundred gallons of elixir I. Q. & S., and according to the experience of a number of other pharmacists, we have never had any precipitation in this elixir. Nevertheless, from the standpoint of economics, the substitution of potassium in place of sodium citrate should be considered as (1) it is about two cents per pound lower in price; (2) it requires about 10 per cent. less, because on account of containing only one molecule H_2O, its molecular weight is 322.08, while sodium citrate contains $5\frac{1}{2}$ molecules of H_2O, and has a molecular weight of 354.6.

In my experience it is immaterial, regarding the color of the tincture, if the potassium or the sodium salt is used, as frequently, in fact mostly, the desired apple green color is not obtained. Even by following the formula and using the chemicals of the very manufacturer who suggested potassium citrate, I failed to obtain in the proper color. During my many years of experiments I have also tried the following modifications of the N. F. formula:

1. Increase in quantity of sodium or potassium citrate, by taking from 10 to 50 Gms. more.

2. Instead of dissolving the citrate in the iron solution "by the aid of a gentle heat", as stated in the N. F., I have employed a higher heat up to boiling point.

While these two modifications will *sometimes* help to develop the apple green color, I came to the conclusion that the fault does not lay in the sodium citrate, which is a stable and uniform chemical, but in the solution of iron chloride.

The U. S. P. requirements are that Liquor Ferri Chloridi should contain 29

per cent. anhydrous $FeCl_3$, corresponding to about 10 per cent. metallic iron, and furthermore, that nitric acid, which is used in the oxidation process, should be absent. In my experience, the solution also differs greatly as to its acidity; i. e., its excess of hydrochloric acid, of which a little is needed to prevent the formation of a basic or oxychloride.

From experiments which extended through several years, I found that when the acid solution of ferric chloride is partly neutralized, either before or after the addition of sodium or potassium citrate, then the beautiful apple green color will be developed.

My modus operandi is as follows: Heat the diluted solution of ferric chloride, and dissolve therein the sodium or potassium citrate. In case the apple green color is not brought out, then gradually add a little sodium bicarbonate, and heat to expel CO_2 before adding more, until the desired shade of green is obtained. When cool, add a sufficient quantity of water, and lastly, the alcohol. According to my experiments, from 15 to 25 Gm. $NaHCO_3$ are required for 350 Cc. solution of ferric chloride, or 1000 Cc. finished tincture.

Besides sodium bicarbonate, the carbonate or also potassium carbonate can be used with the same results. The iron in this preparation is in the ferric state, presumably as a double salt of iron and sodium citrate.

Care must be taken not to add too much alkali or an olive green color is developed. By the addition of still more alkali the green color will disappear entirely, and when neutral, then the preparation has a red color, and is now a ferrous salt instead of being in the ferric state.

In my opinion, our N. F. should recommend the addition of a sufficient quantity of $NaHCO_3$ to bring out the apple green color. It might also substitute 390 Gm. of potassium citrate in place of 425 Gm. sodium citrate. The N. F. IV might also give a short description as to color, taste and reaction, also tests for the absence of ferrous salt, and last, but not least, a statement of keeping this tincture in amber bottles protected from light which, as it is well known, will reduce iron preparations from the ferric to the ferrous state.

DISCUSSION.

A. B. STEVENS: "Mr. Raubenheimer has called your attention to the fact that in order to obtain the apple green on the addition of the citrate to the tincture of chloride of iron it is necessary to neutralize the mixture with sodium carbonate, but should you add too much sodium carbonate you will obtain a brown color. The neutral citro compound is green and does not respond to ordinary tests for iron, either ferrous or ferric, but on the addition of a few drops of acid it gives the characteristic tests for iron in the ferric condition. The first addition of the carbonate simply combines with the free acid in the tincture. Upon further addition of sodium carbonate ferric hydroxide is formed which redissolves in the chloride present. The depth of color depending upon the amount of hydroxide formed.

"The green solution may be separated into a crystallizable and a non-crystallizable substance. By adding alcohol to a concentrated solution of the citro compound you obtain a precipitate which may be washed with alcohol until free from chloride, but this is very tedious. A better method is to add alcohol to the concentrated solution until a permanent cloudiness appears, then pour this mixture into strong alcohol. In a short time, what at first appears to be a precipitate separates in the form of a dark green, thick liquid. Pour off the alcohol and add sufficient water to make the solution thin enough to pour easily, and again pour into strong alcohol, stirring constantly. If this operation is repeated several times the precipitate becomes a thick plastic mass, free from chloride. If this is covered with alcohol and left for

a few hours it assumes a solid amorphous mass, which, on removal of the alcohol and drying may be easily powdered. The powder is strongly acid and consists of iron, potassium and citric acid. The molecular formula has not yet been determined, but from the character of similar compounds I presume we will find that the iron has replaced the hydrogen of the citric acid radicle.

"If the alcohol, from the precipitation of the citro compound, be distilled or evaporated to dryness potassium chloride may be obtained. These experiments prove that the compounds which we have called citro-chloride and citro-iodide of iron are not true to name but are potassium iron citrates.

"Syrup of citro-iodide of iron manufactured strictly according to the National Formulary will always be brown, due to the presence of free iodine. It has been recommended to decrease the last portion of iodine or increase the first portion. This would give an excess of ferrous iodide, which would be objectionable, as it would soon oxidize and the syrup become brown. A better method would be to follow the formula and then remove the excess of iodine by shaking with starch and filtering."

MR. FORD: "The quality of sodium citrate on the market is not uniform as found in the Middle States. The quality of ordinary sodium bicarbonate is also quite different from the U. S. P. substance, and in the preparation of Tincture of Iron Citro-Chloride it is important to use the official article.

"I have always had good success using potassium citrate, as in the original Creuse formula, and believe that failure in the process is commonly due to the use of an inferior quality of alkali salts."

MR. RAUBENHEIMER: "Prof. Stevens' process for making Syrup of Iron Citro-Iodide by removing excess of iodine with starch, has been accepted for the new edition of the National Formulary.

"In developing the green color of citro-chloride tincture only a small quantity of the alkali should be added at a time, and the liquid should be heated to the boiling point, if necessary, to expel CO_2 and develop the desired apple green color. In the specimens submitted it required from 10 to 30 grams to develop that color. Experiments made together with Dr. Francis prove that by further addition of $NaHCO_3$ the green color is destroyed. As soon as the preparation is neutral a brown color will develop in the tincture. The iron is not detectable in these citro preparations unless they are first acidified with a mineral acid."

THINKING IN MONEY.

"There are some people that think so much of money for its own sake that they have learned to think only in the terms of finance and to talk only in the language of the counting house. They have no ear for any music except the clicking of the cash register. They can see nothing in all that God has created that is worth while, except as it may be converted into some marketable product.

"There are men who would gather up the rays of the sun and the glitter of the stars and coin them into gold. There are men who would convert the Mammoth Cave into a subway, the Natural Bridge into a toll-gate; that would plow up our parks and plant them in corn and potatoes; that would sell the Statue of Liberty and Bunker Hill for Marconi receiving stations; they would lease the Washington Monument for a billboard and stretch the equator in the back yard for a clothes line; but there are some men who earn their money, who get it honestly, who appreciate it because of the opportunity that it gives to serve themselves and their fellow men.—*Charles F. Moore,* Editor of "Paper."

Section on Commercial Interests

Papers Presented at the Fifty-Ninth Convention

COOPERATION AND CONSOLIDATION.

A. R. L. DOHME.

This is the age of cooperation and consolidation of effort and interest. Everything is drifting in that direction. It is natural that it should, for it makes for economy and result. Those trades or professions which have been successful and advanced their status, their efficiency, and their general welfare are those in which cooperation and consolidation have progressed furthest. If this cooperated and consolidated effort is well directed and honestly managed on the principle of the greatest good to the greatest number, it invariably benefits all concerned, and the best instance of it is the American Medical Association, which has accomplished wonders in helping its members, advancing their standing as professional men, and obtaining desirable and necessary legislation for its members.

Cooperation and consolidation are beneficial to all concerned in the following ways:

First: Commercially, in dollars and cents. Dues for several organizations cost more than for one; expense to attend several meetings costs more than one.

Second: Legislatively, in accomplishing better but less laws for state and nation. One large organization representing the entire profession would receive a respectful and effective hearing where a division in the rank and file weakens their effectiveness. How can a committee of Congress or of a legislature pay any heed to the recommendations of the legislative committee of the A. Ph. A. when these recommendations may be offensive to the N. A. R. D. or vice versa?

Third: Socially, in pleasure and enjoyment and status before the people. To feel that we belong to a national organization of one's own profession fills one with just pride and pleasure, but this cannot well be the case when we have two or more separate, distinct bodies each fighting its own battles, and at times fighting the efforts of the sister organization. How much more pleasure to attend a large meeting of all the profession and meet all of them instead of only a portion of them. How much more advanced and high is the standing of a united organization than a divided organization in the eyes of the people and of the press?

Fourth: Generally, in generating harmony and good fellowship among the profession. Harmony in a profession is a wonderful asset when it comes to accomplishing anything in which it is interested. As long as there are several organizations of the same profession, absolute harmony cannot and as a matter of fact does not exist.

Let us look among the allied branches of the profession and what do we find?

There is only one wholesale druggists' association, the N. W. D. A., which as its motto says, "builded better than it knew." There is only one proprietary association, "The Proprietary Association of America," and how effective and beneficial it has been to practically all its members is well known to you all. There is practically only one medical association of national scope among the allopathists and its tremendous membership and its wonderfully broad, successful, and instructive meetings speak louder than anything I can say for the efficiency of consolidation and cooperation. Why then should pharmacy be the exception and persist in maintaining a divided household? Is there any rational reason why the A. Ph. A., founded in 1851 and busying itself heretofore principally with scientific pharmacy, and the National Association of Retail Druggists, founded in 1894 and busying itself principally with commercial pharmacy, should not amalgamate into one large, representative, and influential organization? Personally, I can see no real rational reason why they should not, as, for instance, what name shall such resulting association have and which shall submerge itself? To me those seem minor questions to the general broad problems of let us join hands in good fellowship and brotherhood. It has always been clear to me that the A. Ph. A. has not paid enough attention to the commercial side of pharmacy and thereby lost the interest of that great number of pharmacists who have realized that the pharmacy of today is largely merchandizing and requires close attention to and intimate knowledge of merchandizing and commercial usage and practice. You will find that as a rule the most successful pharmacists are usually not the scientific kind, just as the most successful merchants are not the scientific kind. The latter no doubt themselves know more about their preparation, their solubilities, incompatibilities, assay, purity, etc., but their trouble is that they pay so much attention to the preparations themselves that the store soon looks unclean, the clerks look much the same way, the store does not study the public demands and the question of profit upon goods sold is of secondary importance. Their theory is, rather make your own tincture of belladonna and assay it yourself so you know it is correct in every minutia and make not one iota of profit upon it than run chances of its being wrong. Every one of our cities can point to dozens of such druggists. They are great on discussing the theory of the profession but mighty weak on putting it into practice. What you all are looking for is increased volume and profits in business. This is commercial pharmacy, involving knowing how to advertise to the public, how to please your customers and how to gain and hold the physician's confidence. There is no doubt we have too many pharmacists in most of our cities, just as we have too many physicians, and the result is that the survival of the fittest comes into play, and this means that those pharmacists who combine in themselves the ability to select the capable and honest helpers, actively advertise their business, keep their store scrupulously neat, clean, and up to date, and secure the acquaintanceship and confidence of the physicians of their city, will survive. The man who can and does make all his tinctures, fluid-extracts, emulsions, pills, capsules, plasters, etc., and in doing so lets the store look dingy and does not keep up the books and the cash account will sooner or later be superseded and fall by the wayside. My only purpose in bringing out this point is, that the reason the N. A. R. D. ever had a reason for being born and growing into the strong body it now is, is because the A. Ph. A. had too many

"watch your percolator" members and too few "watch your profits" members. The follower of the "percolator" philosophy never seemed to increase his bank account, while the follower of the tidings of his cash register seemed to wax richer and fatter and happier.

If the N. A. R. D. and the A. Ph. A. would consolidate and each continue its present occupations and activities, but merely meet at some time and place, it would be a great step in advance. If you please, let them meet together as separate organizations at the same place and have their amusements only in common—shake hands and meet socially. The next year, let them repeat this but hold joint meetings upon topics which they have in common, and the third year let their program committees get their heads together and have a joint program throughout. If this greatly to be desired object can be accomplished in less than four years, all the better for all concerned. That it should be accomplished will, I feel sure, meet with the hearty concurrence of practically all of the members of both associations. That its accomplishment will greatly advance the standing of the profession of pharmacy, and the welfare of its members seems self-evident to me.

DISCUSSION.

MR. GUILFORD: "It seems to me that the callings of the two associations are so different—the one commercial and the other professional—that it would not be feasible to consolidate them, though I speak without giving the matter any particular thought. It does seem to me, however, that it would be well if we could get nearer together, that is, if we could hold our annual conventions at the same place, the one immediately following the other, so as to offer a greater opportunity for members to attend both meetings. I think this would increase the attendance and that both associations would profit by it."

H. P. HYNSON: "The subject dealt with by Dr. Dohme's paper has caused me a great deal of thought because I believe we must decide that question. There is absolutely no reason for wanting the N. A. R. D. to consolidate with this Association. This is an association of pharmacists where the educational and professional features are emphasized. The retailer has other problems than these, commercial problems which can best be decided by the N. A. R. D. The Wholesalers' Association does not desire to come into this association, and yet it would be just as practicable for the Wholesalers' Association, the Proprietors' Association and the Chemistry Association to consolidate with this society as for the N. A. R. D. to do so.

"I know something about the National Association of Retail Druggists, and it is a matter of pride and pleasure to me that I have had something to do with its origin and development. I am glad to see it coming out of tribulation into the field of usefulness, and I believe the N. A. R. D. is going to solve its own problems.

"We should have a Legislative Conference of all the pharmaceutical interests of this country, and I want you to think of the possibility of this catholic association of ours forming a conference on National legislation."

C. A. MAYO: "I believe Mr. Hynson's suggestion of a National Legislative Conference is the proper solution of the question of national legislation. In New York City we had imposed upon us a regulation most onerous and objectionable. A conference was called of every pharmaceutical organization, each of which was invited to send two delegates. We then went to the Board of Health and said, 'Gentlemen, we represent seventeen different pharmaceutical organizations of New York City, we represent every pharmacist in this city.' And they listened to us."

MR. GUILFORD: "The N. A. R. D. has called a Conference on Legislation to meet at the Niagara Falls Convention, and one session of the convention has been set aside for legisla-

tive work. The session will be presided over by the Chairman of the Legislative Committee and any druggist will have the privilege of the floor at this time.

"We have invited the president of every pharmaceutical association in the United States to send a delegate to attend that particular session. I want to invite all of you gentlemen, especially those who have never attended the N. A. R. D. to meet with us this year.

"While we do not go into the professional part of pharmacy, we do try to do everything we can for the retail druggist in a commercial way. We are officered by retail druggists for the interest of retail druggists, and our association was never in a better condition financially or in membership than at present."

T. V. WOOTEN: "I, too, have been much interested in the relation of the two organizations, the A. Ph. A. and the N. A. R. D. I am inclined to agree that there are so many things to be considered by the two organizations that it is almost impossible to form one organization that can adequately accomplish the business of both. It does seem feasible to me, however, that these two organizations should hold their annual meetings quite close together, if not the same week, then parts of two weeks which come together; one meeting the latter part of one week and the other the early part of the next week ,or some similar plan."

THE DRUGGIST'S PLAIN DUTY.

When a piece of drug merchandise is labeled "consumption cure" or "cancer cure" is it not at least as much the business of the druggist to know whether it is what it pretends to be and to refuse to offer it for what it is not, as it is the hardware man's business to know the difference between stamped sheet-iron, tinned, and block tin? And are there not "shoddy" goods in cod liver oil preparations that are as far from being true to label as their congeners in the dry goods world are from being first-class woven worsteds? Then what about the preparations advertised in the fake beauty column of the daily papers, the poisonous mercuric freckle removers, and the others which are positively harmful or just plain humbugs? That a great many people want, or think they want, these things, is true; that they expect the druggist to supply them is also true. A third truth which should be considered in this connection is that the public are influenced in their estimation of the value of such preparations by the attitude toward them taken by the druggist. The public believe, and have a right to believe, that the dealer is in a position to know, and does know, better than they the value of the goods he handles. If he endorses an article, actually or tacitly, he should know that it is worthy of his endorsement. If he knows, or feels, or has good reason to suspect, that the piece of merchandise asked for by a customer is not what the customer believes it to be, it is his duty as an honest merchant to advise the customer.—*Druggists Circular.*

MORBID FAITHFULNESS TO DISCIPLINE.

"They tell us of the 'sublime nobleness' of the Roman soldier at Pompeii, whose skeleton was found centuries afterward, imbedded in the once molten lava which swept down upon the doomed city. He was still standing at one of the gates, at his post of duty, still grasping a sword in his crumbling fingers. His was a morbid faithfulness to a discipline from which a great convulsion of nature had released him. An automaton would have stood there just as long, just as boldly, just as uselessly."—*William George Jordan.*

Section on Historical Pharmacy

Papers Presented at the Fifty-Ninth Convention

SOME PHARMACISTS IN NEW YORK CITY THREE-FOURTHS OF A CENTURY AGO.

EWEN MCINTYRE.

A country lad, the third of six brothers, with an education primarily acquired in the little red school house, with an added two and one-half years at what was then known in New York state as the "Academy," now obsolete, to secure that education walking nearly three miles morning and evening, realizing the need of a choice of his life work, secured a position in New York City with George D. Coggeshall, corner of Rose and Pearl streets, the corner now occupied by Scott and Bowne's Cod Liver Oil business. The then prevailing arrangement for an apprentice was for four years; compensation, board and lodging, two courses of lectures on Pharmacy and Chemistry, and at the end of the four years, $150 in money.

The country lad served the four years, graduating at the College of Pharmacy in 1847. He remained with his employer three years longer, and then being seized with a desire to do for himself, opened a modest store at what was then considered out of the city, at the corner of Broadway and 18th street. At the time cows were kept on one of the opposite corners and milk sold; on another corner pigs were kept. It may interest some beginners to state that the receipts for three weeks averaged less than 11 cents a day, and for three months about one dollar. There were no houses above 16th street, on the east side, and none above 23d street on the west side of 5th avenue. Corporal Thompson's coach house was at 23d street, Broadway and 5th avenue.

The store doing the largest prescription business at this time was at No. 6 Bowery, carried on by Adamson & Olliffe. Mr. Adamson was a well educated man, highly esteemed in his profession, of most decided character and opinions. He was president of the N. Y. College of Pharmacy at the time of the enactment of the first law for the inspection of imported drugs, chemicals and pharmaceutical preparations, and took an active part in all movements for progress and higher aims in pharmacy. An answer to his letter to English manufacturers and exporters, viz., that "chemicals and preparations exported to this country were as good as we Americans would pay for," went far, very far, to pass the bill. The store, No. 6 Bowery, is still being carried on in the old wooden building, a curiosity hidden under modern necessity for rapid transit, by the unsightly elevated railroad. There is none of the old firm interested in the present store; all have passed away.

Rushton and Aspinwall carried on the first store on lower Broadway near Maiden-Lane. It was probably the largest and most showy store in the city at the time, and in its history passed through many changes. Mr. Aspinwall separated from the firm and for many years carried on a store at 86 William street,

a wholesale and retail store doing quite a large business, especially wholesale, but he got into some difficulty with the government concerning duties on Oil of Bay, finally made a disastrous failure, and soon after died, and the business closed. Rushton continued the business at the Broadway store for some years until his death, when his clerk, Wm. Hegeman, taking in a partner, A. M. Clark, continued the business until Mr. Clark's decease, when the business continued under Mr. Hegeman's name. At one time he had five stores on Broadway, but alas, panic and hard times came, rents had to be paid, business or no business, and he failed, and soon afterwards died. Mr. Hegeman was a good pharmacist, was president of the College, taking quite an interest in his profession. His son for a few years had a store near 10th and Broadway, and was a most capable and efficient secretary of the College for several years. He died, and now there is only the name left used as a trade mark to exploit the modern departure in business, combinations and associations without an atom of personality in them.

John Milhau, a French refugee from the massacre and rebellion in San Domingo, carried on the next store at 183 Broadway. He was a gentleman of the old school, well educated, polished and courteous in his manners and of kindly disposition; had a fine business, and for many years supplied the navy with drugs. I had the great pleasure of his relation to me at my store of the incident that decided him to choose Pharmacy as his lifework, and I think it is worth repeating. When Mr. Milhau and his father escaped from San Domingo during the rebellion and landed at Baltimore, in order to save some of their property it was necessary to get some gold. After a diligent search all over Baltimore, it was found impossible to secure what they needed, but they were told there was an old Portugese apothecary in the city, and if they would go to him and tell him their story and its needs, it was thought he could supply what they wanted. They did so, and the old apothecary at once went to an iron box and produced the needed gold in Spanish doubloons, so on leaving the shop young Milhau said to his father, I shall have to choose some business, and as the only party in Baltimore that has gold is an apothecary, I shall choose that business, which he did. One of his grandsons afterwards informed me that his grandfather entered business in Baltimore and was able at 20 years of age to sell his business, go to Paris, enter the schools there and graduate as an apothecary; and also related that his grandfather was a relative of General Lafayette, who advised and urged Mr. Milhau to go into business in Paris. Mr. Milhau declined the advice, stating that America was his country and he would return to it, which he did, opening the store at 183 Broadway. Lafayette was at Mr. M.'s wedding, the grandson stating it was one of the reasons of his, Lafayette's, second trip to America. Mr. Milhau took much interest in every movement for educating and improving the members of his profession, for many years was a trustee of the N. Y. College of Pharmacy and its president for some time, and active in the organization of the A. Ph. A. At his decease his son continued the business for some years, but at his death the business passed from the family and was closed.

Charles Ring, corner of Broadway and John street, was the next store. The place was notorious as a back-room bar. It was not very long lived as a business. Ring was my immediate predecessor at G. D. Coggeshall's as clerk.

The store at the corner of Broadway and Chamber was the next, kept by

a Mr. Hart, a quiet man who seemed to do a nice business and never to be much interested outside of his store. The business was closed when A. T. Stewart put up his great store on that block, including the drug store corner.

John Meachim was the next, at 511 Broadway. He was a graduate in pharmacy, and clerk, I think, at the Hegeman store; was greatly interested in his profession, secretary of the College of Pharmacy for many years, had a good business, continued for many years at the same place. At his death his clerk, Mr. Marsh, continued the business at 511 for a time and finally moved to Broadway near 22d street, and at one time the firm was Gautadan and Marsh.

Adamson & Olliffe had a branch store for a time at the corner of Broadway and 4th street. At Mr. Adamsan's death John Caucevan carried it on in his own name.

J. and I. Coddington had the store at the corner of 8th street, under the N. Y. Hotel, for several years, moving to Union Square finally, where both brothers died and the business was closed.

A curious character by the name of McNally had for a time a store at the corner of Broadway and 12th street, but finally sold it to a Dane whose name I have forgotten. The Dane moved to near 20th street, carrying on the business there until his death, when it was closed. Rushton opened a store, Broadway and 14th street, a very showy store, but in 1849 it was owned and carried on by a Mr. Merseveau, and in a year or two by Thos. T. Green, a good apothecary, but irritable, cross-grained and not a success in the business. He died and the store was sold out at auction.

Helmbold, proprietor of Helmbold's Buchu, who used to drive around the city four-in-hand, spent a good deal of money in fitting up a store near Broadway and 17th street, but before he was ready to open it he was declared by the courts to be crazy, and the store was never opened. It was finally sold out at auction.

The next was at the corner of Broadway and 18th street, where it was carried on eight years on the southeast corner, and forty more years on the northeast corner, when it was closed and the business removed to 55th street and 6th avenue, and is still continued.

Now after all these years the lad is still spared, greatly honored by the A. Ph. A. at its last gathering by its action so entirely unlooked for and unexpected. He wonders if it be possible that in the next seventy-five years the marvelous progress that has taken place in his day will be repeated. He remembers that he has counted thirty or forty wagons and teams a day, known as "prairie schooners," loaded with a few household effects and sturdy New England pioneers, on their way to settle the West; now the great states of Ohio, Indiana, Illinois and Michigan. He has seen building the second traffic railroad in this country, from Schenectady to Utica, passing near his father's door. In those days there were no matches, no photographing, telegraph, electricity and its marvelous adaptation in the service of our everyday life. There was no A. Ph. A., even. Shall all this great progress go on? And why not? For even now we see machines and men flying in the air. So it behooves every member of this Association to stand with one purpose, one aim, to raise high the standard of our profession, and do all that we can and should do in relieving sickness, suffering and pain so largely a part of man's inheritance.

Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter:

(Fourth Installment.)

Drugs: Identification by Pyro-Analysis.—L. Rosenthaler finds that useful assistance in the identification of a drug can often be obtained by subjecting it to heat in the dry state and examining the sublimate produced. This is specially the case where the drug is in too fine a powder for recognition by microscopic characters, and the quantity available is too small for ordinary chemical examination. A small quantity of the powder is introduced by means of a long funnel into a suitable tube, so that none of it comes into contact with the side walls; the drug should be covered with a layer of asbestos, to prevent any of the powder being carried up mechanically. The tube is closed with a rubber stopper having two holes, one of which carries a doubly-bent tube leading to a small vessel acting as receiver, and a tube through the other leads to an air pump. The air is exhausted, and the tube containing the drug heated in a bath of sulphuric acid or paraffin; a sublimate will generally form in the same tube, and other distillation products will pass into the receiver, and can be tested by treatment with various solvents, etc. The following drugs gave crystalline sublimates when treated in this way:

Cinchona gave a nearly colorless tar, containing crystals, which appeared as triangles, rhombs, and hexagons, and showed bright colors with polarized light; they were insoluble in ether, soluble in alcohol or acetic acid, the latter solution giving a precipitate with picric acid, Wagner's reagent, or Mayer's reagent.

Barberry Leaves gave colorless irregular crystals, showing bright colors with polarized light, and giving reactions of hydroquinone.

Frangula Bark gave yellow columnar crystals, united with each other at angles of 45° and 90°. An ethereal solution of the sublimate gave with caustic soda the red color of oxymethylanthraquinone.

Cascara Sagrada gave bright yellow amorphous masses containing needle-shaped dark yellow or brown crystals, and darker colored drops; the oxymethylanthraquinone test gave a positive result in this case also.

Rhubarb gave bright yellow masses containing crystals, some lance-shaped and single, others needle-shaped in radiating groups; the residue of an etheral solution gave a purple color with caustic soda.

Galls gave crystalline layer resembling "ice flowers," and giving reactions of gallic acid with a little pyrogallol.

Hydrastis yielded a tar, at first colorless and afterwards brownish-yellow, which became completely crystalline with a dendritic appearance, or in parts with an appearance like that of threads of bacteria; neither hydrastine nor berberine was found in the sublimate, alcoholic solution of which gave a green color with $FeCl_3$.

Characteristic sublimates were also obtained from *Opium, Cubebs, Calabar Beans, Black Pepper, Aniseed,* etc.—Ber. d. Deutsch. Pharm. Ger., 1911, 6, 338.

German Tobacco: Distribution of Nicotine in the Plant.—Dr. R. Gaze reports the results of a long series of experiments undertaken with the object of ascertaining the distribution of nicotine in different parts of the tobacco plant, his experiments being confined principally to tobacco grown in Germany. His results show that the nicotine content of German tobacco does not alone vary considerably in individual plants of the same species—ranging from 0.56 to 0.1%, but it varies in the individual leaves of the same plant, as well as in the axils—the content of alkaloid at the axil points being appreciably smaller than in the other parts of the leaf. The ex-

periments were carried out in each case with nine plants of each species planted in June and harvested in August, which were raised from seeds reliably obtained from seven different localities.—Apoth. Ztg. XXVI (1911), No. 90, 938.

Linseed: Percentage and Properties of Mucilage.—According to the investigations of H. A. D. Neville, linseed contains about 7% of mucilage, which, as obtained by swelling up the seeds in very dilute sulphuric acid and precipitation from the colloid solution obtained with much alcohol, is a slightly acid substance, having a percentage composition corresponding to a carbohydrate, and contains a small quantity of ash. Purification by repeated solution in water and precipitation by alcohol lowers the ash-content somewhat, but does not remove the acid property. On hydrolysis with diluted sulphuric acid, dextrose, galactose, arabinose, xylose and small amounts of cellulose-like substance and of an acid yielding a soluble barium salt, are formed; while on boiling with hydrochloric acid, furfurol is evolved in quantity corresponding to the presence in the mucilage of about 17% of pentosans. Malt extract, saliva, and pancreatic juice have no action on the mucilage.—Pharm. Jour. and Pharmacist, Oct. 21, 1911, 528; from Chem. Trade Jour., Sept. 16, 1911, 265.

Curcumin Paper: Preparation.—The "Vierteljahrschrift f. prakt. Pharm. (1911, 72,) recommends the preparation of curcumin paper by dipping sheets of the best white filter paper in a solution of 0.1 Gm. of curcumin in 100 Cc. of 90%, drying the paper in the dark and so preserving it in well-stoppered bottles. *Curcumin* is made for this purpose by drying turmeric at 100°, extracting it in a Soxhlet with petroleum benzin for four hours, then drying, and extracting it in the Soxhlet with benzene (benzol) for 8 or 10 hours. On cooling, the curcumin separates from the benzol solution within 12 hours.—Pharm. Zeutralh. LII (1911), No. 34, 900.

Powdered Rhubarb: Detection of Turmeric.—Dr. E. Richter gives the following directions for detecting turmeric in powdered rhubarb by means of boric acid: Triturate 0.1 gm. of the powder with 5 drops of a 1:30 solution of boric acid which has been acidulated with hydrochloric acid, spread the magma out on a watch glass as far as possible and evaporate to dryness on a water bath. The dry residue is scraped from the watch glass, triturated as fine as possible, a portion of the powder is transferred to an object glass with a drop of liquid paraffin. Under the microscope the presence of curcumin is then distinctly revealed by the red color of the particles, the rhubarb simply retaining a yellowish color.—Apoth. Ztg. XXVI (1911), No. 88, 921.

Casimiroa Edulis: Constituents of the Seeds.—Under the title of "Zapote blanco" the Mexican Pharmacopœia recognizes both the fruit and seed of *Casimiroa Edulis*, a tree widely distributed throughout Mexico and Central America. The fruit is edible, but the seeds have been stated to be deleterious and even poisonous, and although the subject of chemical investigation, and reported to contain both an alkaloid and a glucoside, no definitely characterized substance has hitherto been isolated from them. Frederick B. Power and Thomas Callan have now made a complete chemical investigation of these seeds in the Wellcome Chemical Research Laboratories, and report the results obtained with 37 kilograms of the kernels. This material was first completely extracted with hot alcohol, the greater portion of the alcohol then removed, and the resulting thick extract distilled in a current of steam. A small amount of a pale yellow essential oil was thus obtained, which possessed an agreeable aromatic odor. It has the following constants: d=0.9574 at 20°; ^{a}D—2°25′ in a 25 Mm. tube. From the portion of the extract which was soluble in water there were isolated: (1) A new alkaloid, *casimiroine*, $C_{21}H_{29}O_3N_3$ (m. p. 196-19°), of which the aurichloride and picrate were prepared. This alkaloid, on heating with alkalies, undergoes hydrolysis with the elimination of carbon dioxide, yielding a new base, *casimiroitine*, $C_{20}H_{22}O_7N_2$ (m. p. 171°), in accordance with the following equation: $C_{21}H_{29}O_3N_3+H_2O=C_{20}H_{22}O_7N_2+CO_2$, (2) A new alkaloid *casimiroedine*, $C_{17}H_{24}O_3N_2$ (M. P. 222-223°), of which the aurichloride was prepared; and (3) benzoic acid, with a trace of salicylic acid. The aqueous liquid contained, furthermore, a quantity of sugar, which yielded d-phenylglucosazone (M. P. 205°).

The portion of the extract which was insoluble in water consisted of a soft, oily

resin, from which the following compounds were obtained: (i) Sitosterol, $C_{27}H_{46}O$; (ii) ipuranol, $C_{28}H_{38}O_3(OH)_2$; (iii) a mixture of fatty acids consisting of palmitic, stearic, oleic, linolic, and linolenic acids; (iv) a new lactone, casimirolid, $C_{24}H_{28}C_6$; (M. P. 229-230°), which yields a new hydroxy-acid, designated as casimiroic acid. $C_{23}H_{28}O_4(OH).CO_2H$ (M. P. 207°). From this acid there were prepared the silver and copper salts, methyl ester, and acetyl derivative; (v) a yellow, phenolic substance $C_{16}H_{12}O_6$ (M. P. 215-218°), which also appears to be a new compound. Physiological experiments conducted by Drs. Dale and Laidlaw failed to reveal any specific action of this material or any of the products described.—Pharm. Jour. and Pharmacist, Nov. 11, 1911, 623.

Wallflower Oil: Preparation and Properties.—From the flowers of *Cheiranthus Cheiri*, L. (the common "Wallflower"), E. Kummert obtained by extraction with low boiling solvents a dark-colored extract of an ointment-like consistence which when freed from wax and fats by means of strong alcohol and subsequent subjection to steam-distillation, yielded 0.06% (calculated on the flowers?Rep) of an oil having the following constants: b. p. 40° to 150° (3 MM.); sp. gr. at 15°, 1.001; acid val., 0.35; ester val., 20.0; sapon. val., 20.35. When strongly diluted this oil had the natural odor of the flowers, but in the concentrated state it had a disagreeable odor. Subjected to fractionation in vacuo (3 MM.), a small fraction of bodies boiling below 40° was obtained. These bodies had an unpleasant odor, and were probably of the nature of mustard oil. From the higher boiling fractions a mixture of odorous bodies was obtained, pointing to the presence of *anisic aldehyde* and *irone*. Furthermore, after freeing the oil from ketones and aldehydes, the presence of nerol, geraniol, benzylalcohol, linalool, traces of phenols and lactones, together with acetic acid, salicylic acid, and anthranilic acid were determined. Finally, from the highest boiling fractions, which had a well-marked odor of indol, the author isolated the methylester of anthranilic acid, indol and a small proportion of bases with an odor reminding of pyridine.—Schimmel's Rep., Oct., 1911, 05; from Chem. Ztg. 35 (1911), 667.

Cardamom Root Oil: Yield and Properties.—From cardamom roots received from Indo-China, Schimmel & Co. have obtained, in a yield of 0.64%, a lemon yellow oil possessing a peculiar aromatic odor, which bears no resemblance to that of the oil from seed. So far, attempts to ascertain the parent-plant of the oil have been unsuccessful. The oil gave the following constants: $d_{15}°$ 0.9066, ^aD-32°57′, $^nD_{20}°$ 1.48151, acid v. 3.7, ester v. 87.9 ester v. after acetylization 96.7. The oil was soluble in 0.5 vols. 95% alcohol; when more alcohol was added the mixture rapidly turned turbid, and did not become clear again until the solvent had been increased to 4 vols. The results of further examination, which is given in some detail show the presence in this cardamom-root oil of cineol, bisalbolene and a paraffine—bisalbolene being the principal constituent.—Schimmel's Rep., Oct., 1911, 105.

Nilgiri Wintergreen Oil: Botanical Source and Characters.—Werner Reinhart communicates a short account of the preparation of wintergreen oil in India from *Gaultheria fragrantissima*, Wall (*G. fragrans*, D. Don.; *G. punctata*, Blume; *Arbutus laurifolia*, Buch.-Ham.), a little-known plant which occurs gregariously over extensive tracts of the higher Nilgiri-region, and is also frequently met with in the Palni and Travancore Hills. It differs markedly in its habits from *G. procumbens*, L., the parent plant of the American wintergreen oil, which is a small, creeping shrub, while *G. fragrantissima* grows into a strong high bush. The oil is prepared by the natives in the neighborhood of Cotacamund by simple distillation of the leaves with water in primitive copper stills, the oil yield being very small, and the distilling therefore unprofitable. A sample of this Nilgiri wintergreen oil accompanying Mr. Reinhart's communication was examined by Schimmel & Co. While it resembles the oil from *G. procumbens*, both in odor and its other properties, it was inactive, whereas the latter is faintly laevorotary. The following constants were obtained: d15°, 1.1877; ^aD, O°; $^hD_{20}°$, 1.53485; ester val., 364.8=99% methyl salicylate. Soluble in 7 vol. and more of 70% alcohol. The oil had a reddish-brown color.—Schimmel's Rep., Oct., 1911, 96-97.

Licorice: Valuation of the Root and Commercial Extracts.—Ella Eriksson contributes an interesting and practical paper on the val-

uation of licorice root and the commercial extracts prepared from it, on the basis of the sweetening components of the same. While glycyrrhizin must be regarded as the principal sweetening ingredient, and its estimation is therefore of primary importance, the valuation of a sample of root or extract is not complete without the determination of the sugar—saccharose and glucose—which are also present though in variable quantities. In fact, in the experience of the author's investigations, the quantities of these three sweetening substances fluctuate considerably not alone in the root, but more particularly in the extracts. It seems quite probable that the glycyrrhizin undergoes changes in the course of manufacture, and it may therefore be assumed that these various bodies, in some as yet unexplained way, are transformed, the one into the other. The author gives explicit directions for determining the three varieties of sugar, by a method which is based upon their respective reactions with Fehling's solution, and may be outlined as follows:

1. *Glucoses,* by allowing the original solution (obtained by percolation or solution) to remain in contact with Fehling's Solution, *in the cold,* during 15 hours, then collecting, and weighing the cuprous oxide formed.

2. *Saccharose, by boiling* the filtrate obtained from (1), for a short time, collecting and weighing the cuprous oxide.

3. *Glycyrrhizin,* by *prolonged boiling* of the filtrate from (2) and estimating its quantity on the basis of the glucoronic acid indicated by the further reduction of Fehling's solution.

Of the two sugars, saccharose is in preponderance. But that certain changes occur in the sweet principles of licorice root during its manufacture into extracts is evident from the fact that, although the average yield of extract is 30% and the glycyrrhizin content in the root fluctuates between 6.49 and 8.15%, the latter fluctuates between 9.85 and 23.9% in the extracts yielded in the proportions mentioned.—Arch. d. Pharm. 249 (1911), No. 2, 144-160.

Cinnamomum Burmanni, Blume: *Yield and Properties of Oil from the Bark.*—Two lots of cinnamon bark have been received by Schimmel & Co., the one from the island of Celebes, the other from the island of Timor, which when anatomically examined by Dr. Giessler proved to be identical, the parent-plant of both, according to this authority, being Cinnamomum Burmanni, Blume (C. Kiamis, Nees). This material yielded on distillation 0.5% of brownish-yellow oil with an aroma resembling that of Ceylon cinnamon oil, being $d_{15}°$, 1.0198; ^{a}D-1°50′; $^{n}D_{20}°$, 1.58282; soluble in 0.8 vol. and more of 80% alcohol, but giving no clear solution with 10 vols. of 70% alcohol. The cinnamic aldehyde content, as determined with neutral sodium sulphite, was 77%; with bisulphite it showed 80%, but this is considered untrustworthy. The phenol content was approximately 11%. —Schimmel's Rep., Oct., 1911, 106.

Blaud Pills: Commercial Composition.—Albert E. Parkes and John D. Roberts communicate the results of examination of a large number of commercial samples of Blaud Pills, with special reference to their conformity to the B. P. formula in the composition of the pill mass, and the character of their coating. They found the pill mass to differ considerably from the official formula in many cases. Many of the samples were evidently made from ferrous carbonate, and the precipitate, without washing, made up into pills. Some of the samples were also deficient in iron. Most of the pills were the so-called "Pearl-coated" variety, for which purpose steatite (magnesium silicate) is principally used. There is evidence, also, that in some cases steatite is added to the pill mass itself. The authors regard the use of siliceous matter as being reprehensible, and quite unnecessary as an excipient. When such pills are allowed to disintegrate in water or dilute acid, the coating, under the microscope, has the appearance of transparent, sharp, angular particles, resembling finely-ground glass, and the ingestion of such siliceous matter by persons in delicate health must be attended with grave risks.—Pharm. Jour. and Pharmacist, Sept. 2, 1911, 320.

Extract of Malt: Valuation.—Dr. E. Seel discusses the demands that should be made in order to properly determine the value of malt extracts, which are usually confined to the physical characters of the preparation, such as color, consistence, odor and taste. The color depending on the kind of malt used for their preparation, these extracts are differentiated as light and dark in accordance with the color of the malt employed; but this

is not a safe criterion, since the color of the malt employed is liable to vary also according to the method and care in manufacture. The consistence of a properly-made extract of malt should be thick syrupy, depending on a content of about 25% of water, and the odor should be agreeably aromatic, malt-like. The merely physical characters are, however, liable to be misleading, and must be substantiated by a knowledge of the chemical character of the preparation. It may be of good consistence and yet be deficient in maltose (of which it should contain about 55%) with corresponding excess of dextrin, while diastase, nitrogenous bodies (particularly albuminoids) and mineral substances are important constituents which must be taken into account. Of the nitrogenous bodies in malt extracts the albumoses and the phosphorus containing nucleo-proteids, which are rendered soluble by the peptases of the malt, are the most important constituents on account of their ready assimilability. These should be present to the amount of from 4 to 6%. The acid contents, mainly lactic acid, should be insignificant (only a few pro mille). Of the mineral constituents, the readily assimilable phosphorus and iron compounds are also of therapeutic importance, and should not be neglected in a chemical valuation of malt preparations.—Pharm. Ztg. LVI (1911), No. 27, 273; from Med. Klin., 1911, No. 12.

Honey: Rapidity of Inversion of Cane-Sugar by Bees.—A. Korndoerfer observes that the nectar of flowers consists principally of cane-sugar, which when it is collected by bees and placed in their honey bags, undergoes inversion and is then deposited in the cells of the comb. To study this change more exactly, the author placed two colonies of bees, in autumn, into empty combs and supplied them with a 50% solution of cane-sugar. After half an hour sufficient had been taken by the bees to be extracted from the comb and examined; it was then found to contain 42 to 44% of invert sugar, showing that in passing once through the honey bags four-fifths of it had been inverted. Observation showed that bees took two minutes to fill their honey bags and an equal time to empty them into the cell, and this large amount of chemical change occurs in that short time.—Apoth. Ztg. XXVI (1911), No. 64, 659.

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

(Continued from page 173)

In the present installment a number of formulas, domestic and foreign, are given for lubricating jellies or pastes to be used for surgical instruments, catheters, etc. There seems to be a wide range of opinion as to the proper amount of tragacanth, and also of glycerin in this preparation.

The Chairman of the Committee on Recipe Book has made a number of experiments along these lines and finds that from 2.5 to 3 percent of tragacanth is required to form a jelly which is thick enough to be put up into collapsible tubes. This undoubtedly is the proper method of dispensing this lubricant, in order to preserve its sterility.

Inasmuch as there is quite a demand for such a preparation, I believe the pharmaceutical profession should have a reliable formula for same, so each pharmacist can prepare it himself.

Comments and criticisms are invited.

Respectfully submitted,

OTTO RAUBENHEIMER, Chairman.

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(For Abbreviations, see February, Page 169.)

No. 23.

PARENOL LIQUIDUM.

Liquid Parenol.

B. P. Cx.

Liquid Petrolatum	70 Cc.
White Wax	5 Gm.
Distilled Water, a sufficient quantity	
To make	100 Cc.

Melt the Wax in the Liquid Paraffin, pour the mixture into a warm mortar, and gradually add the Distilled Water, previously warmed.

This is a *neutral* liniment which is readily absorbed by the skin and causes no irritation.

It does not become rancid and besides being useful in the treatment of skin diseases and as a vehicle for injections, it is also a lubricant for catheters, etc.

This emulsion was originated by John Humphrey, Secretary of the Pharmaceutical Society of Great Britain.

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No. 24.

OLEUM LUBRICANS.

Lubricating or Catheter Oil. Lund's Oil. Modified Lund's Oil.

B. P. Cx.

Oleum Carbolicum—Carbolic Oil.

P. J. F.

Phenol	5 Gm.
Castor Oil	20 Cc.
Expressed Oil of Almond, a sufficient quantity	
To make	100 Cc.

Dissolve the Phenol in the mixed Oils. This oil is used to lubricate catheters. Pasta Lubricans and also Glyceritum Lubricans, formulas for which follow, are used for the same purpose, and are sometimes preferred, as they can be removed by water and do not attack the material of which the catheter is composed.

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No. 25.

PASTA LUBRICANS.

Lubricant Paste.

Catheter Paste. Kraus' Catheter Lubricant.

B. P. Cx.

Phenol	3 Gm.
Glycerin	10 Cc.
Tragacanth	2.5 Gm.
Distilled Water, a sufficient quantity	
To make	100 Cc.

Dissolve the Phenol in 80 Cc. of Water; then mix the Glycerin with the Tragacanth, add the aqueous solution gradually with constant trituration, and make up the required volume by the addition of Distilled Water.

This paste is used as an antiseptic lubricant for catheters.

This is the original formula for a catheter or lubricant paste. It was originated by Dr. Oscar Kraus of Carlsbad, Bohemia. As is to be expected the 2.5 percent of tragacanth produces a rather thick paste. O. R.

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No. 26.

GLYCERITUM LUBRICANS.

Glyceritum Tragacanthae Compositus.

Lubricant Glycerite. Compound Glycerite of Tragacanth.

Tragacanth	3 Gm.
Alcohol	8 Cc.
Distilled Water	120 Cc.
Phenol, liquefied	4 Cc.
Glycerin, a sufficient quantity	
To make	200 Gm.

Agitate the powdered Tragacanth in a bottle with the alcohol, add the Distilled Water and set aside over night. Then add the Liquefied Phenol and sufficient Glycerin to make 200 Gm., which by volume is about 180 Cc. If necessary, sterilize.

Raubenheimer, Am. D., 1912, 312.

Note: This preparation has the consistence of a thick liquid. When intended for collapsible tubes, it should be made into a paste by increasing the amount of Tragacanth to 5 Gm.

The collapsible tubes have the advantage of neatness and also of preventing waste and keeping the jelly sterile.

The Phenol can be replaced by Solution of Formaldehyde, 0.2 Cc. O. R.

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No. 27.

LUBRICATING JELLY.

Tragacanth, whole	3 Gm.
Glycerin	25 Cc.
Phenol	1.5 Gm.
Distilled Water, a sufficient quantity	
To make	300 Cc.

The Tragacanth is broken in small pieces, put into a wide-mouth bottle, the other ingredients are added and the bottle frequently shaken.

This preparation is used in the German Hospital, Philadelphia.

Submitted by J. K. Thum.

No. 28.

KATHETER PURINE.

Dr. Melzer's Formula.

Hager E. B. 401.

Tragacanth	3	Gm.
Distilled Water	100	Gm.
Glycerin	20	Gm.
Mercuric Oxycyanide	0.246	Gm.

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No. 29.

Formula of Dr. Arth. Strauss, Barmen. Therap. Monatsh.

Tragacanth	1.6	Gm.
Distilled Water	50	Gm.
Mercuric Oxycyanide	0.1	Gm.
Glycerin, a sufficient quantity		
To make	100	Gm.

Triturate the powdered Tragacanth with the Distilled Water, add the Glycerin and then sterilize. After sterilization, add the Mercuric Oxycyanide.

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No. 30.

ANTISEPTIC LUBRICANT.

Tragacanth	30	Gm.
Boric Acid	15	Gm.
Solution of Formaldehyde....	4	Cc.
Oil of Gaultheria.....	5	drops
Oil of Rose Geranium.....	3	drops
Alcohol	120	Cc.
Water	720	Cc.

Dissolve the Tragacanth in the Water in which the Boric Acid has previously been dissolved. Then add the solution of the Oils in the Alcohol slowly to the mucilage, shaking after each addition. Lastly, add the Formaldehyde.

This preparation is non-greasy, non-irritating, smooth and of perfect consistency. It is used in the Pennsylvania Hospital, Philadelphia, to lubricate surgical instruments, catheters, sounds and also the hands to facilitate the putting on and removal of rubber gloves. —John T. Harbold, Proc. A. Ph. A., Vol. 55, 136.

COMMITTEE ON NATIONAL FORMULARY.

The following are the proposed new formulas for Granular Effervescent Salts that have been suggested for inclusion in the forthcoming edition of the National Formulary. The Committee is desirous of having them thoroughly tried by pharmacists in different sections of the country so as to avoid, as much as possible, unfavorable comment after the final publication of the book. Comments and criticisms based on practical experiences will be welcome. All communications should be addressed to the Chairman of the Committee,

PROF. C. LEWIS DIEHL,
932 Cherokee Road, Louisville, Ky.,

who will submit the comments to the subcommittee having the matter in charge.

GENERAL FORMULA FOR GRANULAR EFFERVESCENT SALTS.

The citric acid directed in the formulas should be in clear, uneffloresced crystals and be finely powdered just before using. All other ingredients should be well dried at a temperature not exceeding 50° C., until they cease to lose weight and then finely powdered and passed through a No. 60 sieve. As atmospheric dampness, if present, will be absorbed by the finished granules and destroy the effervescent character of the salt, it is important that these preparations be made in a dry atmosphere.

DIRECTIONS FOR GRANULATING IN AN OVEN.

Having prepared the Citric Acid and the other ingredients of the formula, as directed above, intimately mix the powders, without trituration, adding the Citric Acid last, and spread the resulting product evenly, about 9.5 mm. (3/8 inch) thick, on a sheet of paper on a canvas tray, glass plate or shallow porcelain or enameled dish, and place it in an oven, heated to a temperature between 95° and 105° C. Allow the powder to remain in the oven, without stirring, until it has become moist and acquired the proper consistency, about that of dough, then immediately force the mass through a No. 6, tinned-iron sieve and dry the granules at a temperature not exceeding 50° C. When dry, again pass the granular powder through a No. 6, tinned-iron sieve, transfer it to dry bottles or containers and hermetically seal them.

DIRECTIONS FOR GRANULATING ON A WATER-BATH.

If a small quantity of the Salt is to be prepared, say 100 Gm., the mixed powders may be transferred to a covered dish on a water-bath or to a double boiler, heated by water actively boiling, the inner dish being actually in contact with the water, and the resulting pasty mass stirred until dry. The dry granules should be immediately passed through a No. 6 tinned-iron sieve and transferred to a dry container, which should then be hermetically sealed.

GRANULAR EFFERVESCENT ARTIFICIAL CARLSBAD SALT.

Citric Acid	250 Gm.
Sodium Bicarbonate	300 Gm.
Carlsbad Salt, Artificial	266 Gm.
Tartaric Acid	157 Gm.
Sodium Bicarbonate	100 Gm.
To yield about	1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

GRANULAR EFFERVESCENT ARTIFICIAL KISSINGEN SALT.

Citric Acid	250 Gm.
Sodium Bicarbonate	300 Gm.
Kissingen Salt, Artificial	400 Gm.
Tartaric Acid	94 Gm.
Sodium Bicarbonate	106 Gm.
To yield about	1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

GRANULAR EFFERVESCENT ARTIFICIAL VICHY SALT.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Vichy Salt, Artificial	250.0 Gm.
Tartaric Acid	164.5 Gm.
Sodium Bicarbonate	185.5 Gm.
To yield about	1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

GRANULAR EFFERVESCENT ARTIFICIAL VICHY SALT WITH LITHIUM.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Vichy Salt, Artificial	250.0 Gm.
Lithium Citrate	83.3 Gm.
Tartaric Acid	125.35 Gm.
Sodium Bicarbonate	141.35 Gm.
To yield about	1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

Note: The Lithium Citrate should be dried on a water-bath until anhydrous before adding it to the mixture.

GRANULAR EFFERVESCENT POTASSIUM BROMIDE.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Potassium Bromide	166.66 Gm.
Tartaric Acid	203.7 Gm.
Sodium Bicarbonate	229.7 Gm.
To yield about	1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

ALKALINE GRANULAR EFFERVESCENT LITHIUM, POTASSIUM AND CAFFEINE.

Citric Acid	250.0 Gm.
Sodium Bicarbonate	300.0 Gm.
Caffeine	8.33 Gm.
Sodium Bicarbonate	83.33 Gm.
Potassium Bicarbonate	83.33 Gm.
Lithium Carbonate	41.66 Gm.
Tartaric Acid	180.17 Gm.
Sodium Bicarbonate	203.18 Gm.
To yield about	1000 Gm.

Prepare an Effervescent Salt by the method described in the General Process given above.

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REPORT OF COMMITTEE ON DRUG MARKET, AUGUST, 1911.*

There continues to be marked improvement in the character of drugs and chemicals. Some reports would not indicate this, because the authorities naturally endeavor to secure samples that they believe to differ from the standard and in many cases publish as adulterations deficiencies in strength and differences in the products purchased from the artificial standard they may create.

To illustrate: Out of 931 samples purchased by one Board, about 24 per cent were pronounced as adulterated or varying from legal standards. This number included Liniment of Camphor seven samples, containing from 20 per cent to 66 per cent of the pharmacopœial amount of camphor. Seven samples of Spirit of Peppermint containing from 15 per cent to 80 per cent required amount of oil. Two of Tinct. of Iodine containing 50 per cent and 71 per cent of standard quantity of iodine. Five of Spirit of Lemon, two of which did not contain oil of lemon, and three much below standard. Nine of Spirit of Anise containing from a trace to 75 per cent of oil.

*Presented at the Fifty-ninth Annual Convention.

Of these, five samples examined by an outside chemist failed to give concordant results. The comparison is as follows:

		Board of Health	Outside chemist
Spirit of Anise	1	56%	59.5%
	2	63%	89.6%
	3	58%	63.5%
	4	48%	71.4%
	5	42%	63.5%

It has been suggested by one member of the Committee that the chemists doing this work were prejudiced, one in favor of low results, the other in favor of high results. The high results were reported by a chemist connected with one of our leading schools, with no interest in the case whatsoever. The results were by refractometer readings. The No. 4 lot reading 71.4 per cent was made 73.8 by the separation method. If any explanation is to be sought it might be found in the unintentional mixing of samples.

Several cases were based on variation of Tinct. of Arnica in extractive, although there is no official standard for extractive in Arnica flowers. Such a course seems to be questionable, for it is well known that drugs bearing the same name have a wide divergence in amount of extractive, yielded by different samples, obtained from different sources, grown under different conditions. While we do not believe the range is a wide one in the case of arnica flowers, it is sometimes 100 per cent in other drugs. Then undoubtedly there is as great a variation in the character of the extractive obtained from different lots of the same drug. Observers of experience are aware of the great variation in the alkaloidal drugs grown in different seasons under varying climatic conditions and have noted that the alkaloidal contents bear no relation to percentage of extractive in the alkaloidal drug.

In the case of Tinct. of Arnica, the standard was an artificial one. It was obtained, we understand, by the Board Chemist percolating a sample of flowers purchased in the open market and using the extractive per cent of this product as a standard. He should have obtained many lots of flowers from different sources and made many lots of tincture under different temperature conditions and then adapted the range of results for a standard of comparison, instead of using a single percolate or the average of any number of percolates.

The range in extractive in tinctures prepared from drugs bearing the same name is very wide and might hint at improper percolation, but we would have to examine the drug used to assure ourselves of this. J. W. Pollard of the Mass. College of Pharmacy, found the range in extractive in ten samples of Tinct. of Belladonna, obtained from ten retail drug stores, to be from 1.05 per cent to 3.76 per cent, and the alcohol contents to range from 37.5 per cent to 47.5 per cent. Ten samples of Tinct. Hyoscyamus gave extractive 1.04 per cent to 4.27 per cent, and alcohol 23.9 per cent to 40.3 per cent.

Ten samples of Tinct. Digitalis gave extractive 1.08 per cent to 3.45 per cent, alcohol 21.6 per cent to 40 per cent. Ten samples of Tinct. Gentian Compound gave extractive 1.08 per cent to 5.01 per cent, alcohol 42.6 per cent to 56.4 per cent. Of the forty druggists, measured by the highest standards, thirty-six would be condemned as selling an adulterated product. In the case of Tinct. Belladonna and Tinct. Hyoscyamus we have an official alkaloidal standard, and the extractive standard would not stand in law. Assuming that these tinctures were standard in alkaloid, the extractive variation is remarkably extreme.

Too much care cannot be exercised in arriving at conclusions. A sample of Elixir Glycerophosphates was found to contain phosphate. The product was cloudy. It cleared with a small amount of hydrochloric acid and again clouded on adding ammonia. Another package from the same lot was bright and clear and gave no indication of phosphate. A portion in a test tube exposed a brief time to the vapor of a water bath became opaque. A few drops of acid cleared it and ammonia reprecipitated it. Investigation showed that the original package complained of had been exposed to a high temperature. If a publication is to be used as a standard by which men are to be condemned as delinquents, that standard should be as nearly above reproach as possible and not glaringly faulty. The N. F. offers a formula for Sol. Albuminate of Iron and a propaganda has urged physicians to prescribe it in preference to proprietary products. One pharmacist finds his N. F. formula calling for 40 G. of *fresh* Egg Albumen and 200 Cc. of solution of oxychloride of iron for 1000 Cc. and claiming that the product contains 0.026 of iron in 4 Cc.

Another having a revised edition with a formula calling for 40 G. of dry Egg Albumen, about twelve times as much as called for by the first formula, and 130 Cc. sol. oxychloride of iron, only 13-20 of the amount in the first formula, is told that it, too, contains in 4 Cc. 0.026 of iron. The Health Board Chemist who accepts this statement without verification, condemns every lot made by the formula.

Assuming the calculated standard for N. F. sol. of oxychloride of iron, the first formula would give 0.029 iron in 4 Cc., and the last 0.0188 iron to 4 Cc. Incidentally, the criticisms of different physicians, who prescribed this preparation, are interesting, and examination of products complained of is instructive. Many samples gelatinized on standing a short time. The alcohol contents varied 100 per cent, ranging from 5 per cent to 10 per cent. Iron varied from 0.015 to 0.040. One used caustic potassa instead of caustic soda. The variation in alkalinity is very marked. Correspondence with some leading pharmacists brings the acknowledgment that they do not make the product by the N. F. strictly, but use modifications of their own which they find necessary, yet they do not

hesitate to put the product out on propaganda prescriptions.

It is gratifying to note that in cases brought to court under the various Food and Drug Laws, the courts are taking the view that in cases involving matters of opinion competent testimony must prove beyond doubt the accuracy of the prosecution's opinion. Many of our officials entrusted with large powers under the laws are apt to consider that their individual opinion is the law, instead of the mere dictum of an individual. These laws are criminal statutes, and great care is necessary so as to prevent injustice being done. The defendant is just as much entitled to an opinion as the prosecution, and executive officers must understand that their opinion is not necessarily final.

Dr. Rusby's suggestion that facilities be furnished at importing points for the sorting or garbling of crude drugs, etc., is an excellent one, and the Association should urge the treasury department to furnish such facilities at an early date, so as to avoid loss to importers by rejection of drugs on technical grounds.

We have reached a time when we can establish with fair accuracy the fact that numerous drugs are therapeutically inert. While this is not properly within the sphere of pharmacists, the neglect of the subject of materia medica in our medical schools has forced the study upon the pharmacist. Would it not be well for the Association to prepare a list of drugs which are still used by physicians, but which we know to be of no value? The subject is almost of importance enough to warrant the appointment of a Committee on Inert Drugs.

One member of the Committee objects to the suggestion on the plea that the pharmacist's opinion is of little value. The A. M. A. says that Echinacea is inert, but many physicians find it of value. How can the pharmacist decide except upon the testimony of physicians of his acquaintance, while their opinion may be offset by that of other men quite as able.

We again urge chemical and wholesale drug houses to drop, as far as possible, the use of the misleading term "C. P. chemicals," adopting in lieu thereof the terms "U. S. P." or "Medicinally Pure."

Co-operative work on the assay of crude drugs and galenical preparations shows that considerable variation is to be expected in the results of different analysts. In view of the fact that U. S. P. is a legal standard, we would impress upon the Committee of Revision the importance of not adopting assay processes in the new pharmacopœia, unless they have been thoroughly tried out and proved to give uniform results in the hands of different workers. It is well to pay attention to the physical characters of crude drugs and place intelligent limits on the quality and variety to be used, rather than to depend alone upon a certain standard based on a more or less inaccurate assay process.

Attention is called to the practice of certain manufacturers of offering chemicals, the percentage purity of which is given "by difference." The chief impurities are determined quantitatively and the chemical itself "by difference." The results are often highly misleading.

Undoubtedly we shall see great improvement in the next pharmacopœia. The valuable Digest of Comments issued by the Hygienic Laboratory under the editorship of Dr. Motter and Mr. Wilbert, and the wide range of inexperience in the Drug Laboratory with present processes, should place in the hands of the Committee of Revision more practical data than has hitherto been available.

The suggestion that has been made to issue yearly bulletins of corrections and improvements would seem to be a good one.

ACACIA. The powdered gum will almost always reduce an alkaline copper tartrate solution. It should not be rejected on this ground alone. E. H. GANE.

ACETIC ACID. Product labeled pure, contained trace of copper and had bad pyroligneous odor. E. L. PATCH.

ACID BENZOIC. The test for chlorine compounds is not reliable for distinguishing between the natural and artificial. Some samples of artificial acid show up better by this test than the natural. This means that artificial acid is often offered as natural from benzoin. W. L. SCOVILLE.

ACID BORIC. Two bbls. contained excess of sulphate and calcium. E. L. PATCH.

ACID LACTIC. The acid offered for technical purposes, which is often very impure, sometimes gets into the drug market. The strength is right, but the acid is dark colored and contains much foreign matter. W. L. SCOVILLE.

ACID OLEIC PURIFIED. One shipment contained iron and was very dark colored. E. L. PATCH.

ACID PHOSPHORIC. Fifteen samples tested 84.4 to 85 per cent. W. L. SCOVILLE.

ACID SALICYLIC. The use of natural acid from oil of birch is increasing. Its color is the distinguishing feature and is intentionally left dark. W. L. SCOVILLE.

ACID TANNIC. Crude acid containing traces of gums and resins is frequently offered. It is compact, heavy and usually dark in color. W. L. SCOVILLE.

ACID TARTARIC. Several lots testing well chemically were too dirty to use. Their color was bad and they made a very dirty solution. E. L. PATCH.

ACONITE ROOT. One lot of spongy root rejected. Assayed only 0.25 acontine. E. H. GANE.

ALCOHOL—ETHYL, IN BBLS. New process alcohol made from sawdust by fermentation has appeared in the market. One sample tested 96.1 by specific gravity and had a good odor, but contained 6 per cent of methyl alcohol. The latter is formed in the process. W. L. SCOVILLE. "Commercial" alcohol is being generally supplied and used by the trade for medicinal preparations. Some of it is of

very bad odor and poor quality and trouble may result from use of this article unless the trade is more careful. E. H. GANE. Sample of sugar alcohol stood all U. S. P. tests, was practically odorless and was 94.41 per cent weight strength. E. L. PATCH.

ALOES MOKA. It is an amazing fact that American dealers and manufacturers have for years past permitted themselves to be supplied with this substance under the name of Socotrine Aloes. So general has the custom been that it has caused the greatest indignation for the Federal authorities to now reject the article when so called on the ground that it is misbranded. It is quite true that this article has been geographically classed with Socotrine Aloes, although this classification is not strictly correct. From every other point of view, it is entirely distinct and it is as inferior and objectionable as it is distinct. The substance is black and soft like thin tar, and is exceedingly disgusting in odor and taste. It contains a much larger amount of albuminous matter than official aloes. In fact, I should say that whereas Socotrine aloes is considered the best variety, Moka aloes is about the poorest. The rejection by our authorities of this spurious article has met with vehement protests from the European shippers, but it is undoubtedly to be continued, and it would be well for all concerned to become advised of the facts without delay, so as to accommodate themselves to the new conditions. H. H. RUSBY.

AMMONIUM CARBONATE. Usually runs low. Several lots were below 90 per cent pure—84.8 per cent to 88.24 per cent. W. L. SCOVILLE.

Tested 92 per cent, 94.5 per cent, 92 per cent, 94 per cent, 96 per cent. E. L. PATCH.

APIOL. Adulterated with castor oil, glycerol, gurjun balsam, and a residue from the solvent used in extracting the apiol. Apiols may be green, yellow or white. Are completely soluble in 90 per cent alcohol, ether, chloroform, acetone, benzene and glacial acetic acid. Should preserve their fluidity when cooled to 5°. PHARM. ERA.

APOMORPHINE HYDROCHLORIDE. The U. S. P. calls for the pure, crystalline salt. It is the custom of some manufacturers to always send the amorphous variety unless the crystalline is specified. Many druggists do not consult their pharmacopœia and dispense the amorphous, as it only costs one-fifth the price of the crystalline. Physicians have made many complaints as to difference in cost of prescriptions and radical difference in therapeutical action. Guinard states that the pure crystalline has a predominating stimulant action, while the amorphous is narcotic. A letter from Merck & Co. states that difference in action is not due to impurities in either preparation, but they are not advised as to the exact methods used by their laboratories in preparing the amorphous and crystalline salts. Dorvaults L'Officine cautions the pharmacist against using any but the pure crystalline salt; others may contain a notable quantity of morphine. Messrs. P. W. R. state that the amorphous contains impurities which prevent crystallization. The yield of crystals is small.

The two salts test as follows:

	CRYSTALLINE.	AMORPHOUS.
To the eye.....	White crystalline powder.	Buff colored powder.
To the microscope.....	Colorless crystals.	Yellowish particles, vitreous in appearance, with smaller adhering whitish particles.
Ignited	Smoky flame, no ash.	Smoky flame, no ash.
Color of Aqueous Sol.....	Colorless.	Pale greenish.
Reaction	Neutral.	Very faint acid reaction.
0.100 in 15 Cc. water plus 0.5 Sod. Bicarb. washed out with chloroform, dried at 100° C. (theoretical yield 0.08799)..	Gave 0.090 Gm.	Gave 0.059 Gm.
Titrated with N-10 Sulphuric Acid with cochineal indicator	Gave 0.07955 Gm.	Gave 0.0514 Gm.
Determination of HCl. (theory 0.012006)	0.0121203 Gm.	0.0115776 Gm.
Used the aqueous liquid from which alkaloid had been washed. E. L. PATCH.		

ASAFOETIDA. Thirty-eight lots varied from 21.6 per cent to 61.2 per cent soluble in alcohol. One lot gave over 50 per cent of ash and several lots above 40 per cent. W. L. SCOVILLE. The high percentage of impurity in the commercial article renders necessary a process of purification. One lot of poor grade testing only 40 per cent soluble in alcohol with over 30 per cent of ash, was purified and the finished product showed, ash 3.17 per cent, alcohol soluble matter 73.71 per cent. E. H. GANE. The difficulties of the year in relation to Asafœtida have been much greater than those connected with any other article. The difficulty originates in the fact that is not known what properties should constitute a standard for Asafœtida. With no standard in existence, how can one be enforced? We know that two or more plants, but no one knows how many, yield gum resins for which the name Asafœtida has always been accepted, no matter whether these substances were supplied separately or in a mixture. We also know that gum resins

to which the name does not belong are often mixed with Asafœtida and that they take the odor and taste of the latter. When we are able to pick out these pieces and determine them as ammoniac, olibanum and galbanum, as we have been doing, we are able to declare such an asafœtida as adulterated. When, on the other hand, some of the substances so picked out are unknown and have the asafœtida odor and taste, it is a matter of opinion as to whether they form a legitimate part of the asafœtida or not. With this situation we are frequently confronted and the very best of judges are sharply at variance in their opinions. The situation, moreover, is much worse than appears in this statement, as the dealers are not usually good judges nor careful examiners and they firmly and with sincerity claim the right to the goods, even when it is easy to demonstrate the presence of adulterants. Add to such cases the many in which the dealers know the article is adulterated, yet endeavor to get it through surreptitiously and it will be realized that there is trouble enough with Asafœtida. It is probable that most of the trouble comes from differences of opinion and it may be said that among foreign shippers the opinion is general, and even exists among high scientific authorities that the U. S. government is wrong and acts arbitrarily in its rejection of this article. It is not improbable that the U. S. authorities have erred in some cases. This series of difficulties must continue until some properly qualified person shall visit the Asafœtida region and make a thorough study of all questions pertaining to it, obtaining typical material for which a standard description can be drawn up. The pharmacopœia claims the authority to fix our standards, therefore upon it rests a responsibility for being correct in regard to them. One who assumes authority, but repudiates responsibility for it, must be condemned. H. H. RUSBY.

1 Powd. 41 % soluble in alcohol 36.5% ash
2 Powd. 53 % soluble in alcohol 26.5% ash
3 Powd. 66 % soluble in alcohol 22.5% ash
4 Powd. 66.5% soluble in alcohol 23.5% ash
5 Powd. 37 % soluble in alcohol 40 % ash

1 Gum 55 per cent soluble in alcohol, 26 per cent insoluble, Ash 5 per cent, 19 per cent moisture and volatile matter.

2 Gum 32.5 per cent soluble in alcohol, 53 per cent insoluble, Ash 5 per cent, 14.5 per cent moisture and volatile matter.

3 Gum 19 per cent soluble in alcohol, 71 per cent insoluble, Ash 20.8 per cent, 9.5 per cent moisture and volatile matter. E. L. PATCH. Asafœtida yields 14.56 to 15.90 per cent volatile oil, generally some less in the tears than in the mass, but that from the tears is more pungent, containing more sulphur, often over 10 per cent, while the oil from the mass has about 2 per cent. DRUG TOPICS.

ASPIRIN. Ten samples melted at 130° to 136° C. W. L. SCOVILLE.

BALSAM PERU. In regard to Balsam Peru, an entirely different situation exists. Notwithstanding that original research is needed to perfect our knowledge, yet everyone knows what the article is, and there is no very great difficulty in fixing a fairly satisfactory standard for it. The impropriety here is in the marketing of a purely fictitious manufactured product, an imitation of the natural one. Not only is the article technically spurious and readily distinguished by physical and chemical tests, but its source is such as to render its use as a substitute for Balsam Peru distinctly injurious or even dangerous. It may be asked how such an article can be admitted under the law. This is secured by the use of the word "synthetic" prefixed to the title. Of course, this does not justify its admission, for such use of the word is not permissible. An article like quinine or vanillin, of definite chemical composition, may be made synthetically, if exactly the same in chemical composition as the genuine, but an article that admits of no chemical definition, but only of one that states its source (as a balsam obtained from Toluifera Pereiræ) is not that substance, either synthetic or otherwise, unless derived from said source. Another condition out of which grows great difficulty, is the improper use of the phrase "for technical use." Articles which do not conform to the standard may be imported "for technical use only," but this term is greatly abused in practice, medicinal and pharmaceutical uses being often included under the term. There is the greatest need of some carefully studied provision of the pharmacopœia for specifying just when and how articles differing from the standard may be admitted for technical use. H. H. RUSBY.

BENZOIN. Benzoin runs fairly even 70.8 per cent to 87.5 per cent soluble in alcohol. E. H. GANE. One sample contained 11.1 per cent ash and only 72 per cent alcohol soluble. The impurities were sand and twigs from the tree. W. L. SCOVILLE. One of the greatest difficulties with which the government has to contend in its treatment of importations of this article is the failure of the pharmacopœia to specify the allowable amounts of the different kinds of impurity. It is a peculiar and strange fact that as a general rule those lots containing the larger amounts of bark, wood and other impurities of that class, have the strongest and finest odor, while those from which there has apparently been an attempt to exclude them, are apparently less active. This may be due to the mechanical state of the mass, which leads to a greater freeing of the odorous constituents in the former case, or there may be an actual as well as an apparent superiority. This whole matter requires investigation. In any case, it is up to the pharmacopœia to more perfectly fix the restrictions for this drug. H. H. RUSBY.

BELLADONNA LEAF. One bale rejected owing to age and mildew, assayed 0.23 per

cent alkaloids. E. H. GANE. There seem to be a strong general trend in favor of authorizing the substitution of the herb for the leaves. Should this proposition carry with the Pharmacopœia Committee, without any restrictions as to size of stems, considerable trouble will be prepared for analysts. In spite of all statements to the contrary, large stems are very deficient in alkaloidal percentage. In assaying a drug containing such stems it will be almost impossible to get a representative mixture of stems and leaves as to proportion, unless a very large sample is taken and specially powdered so as to be sure that the entire tissue is represented in such powder. H. H. RUSBY. 0.35 per cent, 0.37 per cent, 0.26 per cent, 0.37, 0.4. These two bales had about 75 pounds of stems in their interiors. Removed both bales, mixed and ground, assayed 0.27 per cent. E. L. PATCH. Thirteen bales contained an excess of stems. Leaf portion assayed 0.298 per cent, and the stem portion 0.175. C. E. VANDERKLEED.

BISMUTH SALICYLATE. Nearly always contains some Subnitrate. REP. DE PHARM.

BUCHU. The demand for Buchu U. S. P. has exceeded the supply and the price has been excessively high. This has stimulated the offering of Long Buchu, which is not recognized by the pharmacopœia, to such an extent that during the second half of the year, supplies of this substitute have probably exceeded the genuine. Such substitution is not necessarily fraudulent, as there is a large demand for long buchu by those who prefer it to the official variety. It may well be that the reason that it is not generally preferred is that the great majority of prescribers are either ignorant or utterly unconcerned as to the distinctions and differences between the two. In any case, the therapeutic differences are insignificant and the deletion of Long Buchu was undoubtedly an error. Its restoration to official recognition would greatly relieve the commercial situation without detriment, even if not with positive advantage to therapeutics. While it is true that some Long Buchu is used by preference, almost all of it goes into consumption as Buchu, its supply being thus fraudulent. In all cases the Federal authorities deny it admission as "Buchu," but by changing the mark to "Long Buchu," the inspector may allow it to enter. In practically all cases the name "Buchu" is restored before the article enters consumption. State and city administrations, so far as I know, have in no instance sought to check this illegal procedure. It is the custom to mix a larger quantity of stems with Long Buchu than with Short Buchu; 8 or 10 per cent is scarcely objectionable, but 10 to 15 per cent is common, and 15 to 25 per cent not infrequent. In the case of Long Buchu, the introduction of as large an amount of stem as could possibly be palmed off has been the rule. This is instructive, as indicating the greater readiness to adulterate an article which is deprived of the protection of the pharmacopœia. In many cases the stems have been chopped up to resemble coarse sand in appearance, before being added, and in some cases, coarse sand has also been added with the stems. Here again the drug is excluded from importation under the mere name, but the strict wording of the law compels its admission if the words "With Stems" are added, although these qualifying words are uniformly eliminated before the drug goes to the consumer, and the states are culpably indifferent to the fraud. Fifty per cent of stems (more has frequently been found) means a reduction of nearly one-half in the medicinal value of a preparation made from the drug. In one instance the foreign shipper powdered the Buchu before shipping it, with the evident intention of making it impossible to determine the presence of the stems in it. I reported 23 per cent. The importer was granted permission to sift out the stems and obtained about 27 per cent. The admission of Long Buchu to the pharmacopœia, and its strict regulation, are loudly called for by the conditions described. H. H. RUSBY.

CALCIUM CARBONATE. Most lots showed traces of iron and aluminum. One lot was off color, very dirty, showed presence of iron, aluminum, phosphates and dirt. E. L. PATCH. from 4 per cent to 15 per cent camphor. M. S. B.

SPIRIT CAMPHOR. From 7 per cent to 8.2 per cent camphor. M. S. B.

CANNABIS INDICA. This drug continues of great interest. Supplies have continued scarce, and prices high, during the entire year. This has stimulated the importation of large amounts of the drug which cannot be regarded as the U. S. P. article. Many of them contain far too large a percentage of seeds. Others are not produced in India at all, but in Africa mostly, and are not cured in the same manner and form as the Indian drug. Owing to the claim, put forward by high authority, that substances are therapeutically equal to the official article, it has been very difficult indeed for the authorities to succeed in maintaining the standard. Large quantities of this drug which have been received have been damaged in curing, having heated in the process of drying so as to turn brown or even black, and in some instances to be absolutely rotten. H. H. RUSBY. Ether soluble resin, 12.1 per cent, 11.1 per cent. E. L. PATCH.

CANNABINE TANNATE MERCK. Brownish powder, odor of cannabis indica. Taste slightly astringent. Not entirely soluble in alcohol. Not soluble in water. Soluble in weak KOH. Solution giving a brownish color. Adding HCl in excess gives a yellowish liquid, adding test solution of Fe_2Cl_6 turns the liquid quite dark. With an excess of ammonia gives a blue black ppt. E. L. PATCH.

CANTHARIDES RUSSIAN. 0.4 per cent, 0.4 per cent, 0.4 per cent, 0.48 per cent, 0.44 per cent, 0.5 per cent. E. L. PATCH.

CARBON PAPERS. Nine blue papers showed arsenic varying from 1-250 grain to 2.15 grains per square yard. Two samples were arsenic free. One purple paper had 14 grains to the square yard, one had 1 grain and six were arsenic free. Five black papers showed 1-200 grain to the square yard and two none. One red paper gave 1-175 grain to square yard, one none. ERNEST O. COOK.

CARAMEL. Adulterated with Ammon. Carbonate and Sodium Carbonate. Sometimes contains 50 per cent sodium carbonate crystal. P. CARLES.

CARBONIS DETERGENS LIQUOR. Great variation is found in this preparation and physicians are frequently disturbed by it. Different formulas give the following:

Coal Tar	Soap Bark	Alcohol
40	20	70% to make 100
20	10	90% to make 100
16	20	33% to make 100
50	20	68% to make 100
20	20	45% to make 100
20	20	80% to make 100
20	10	95% to make 100

Two lots examined gave Alcohol 48.52 per cent and 48.88 per cent, Residue 2.9 per cent and 2.9 per cent. E. L. PATCH.

CHARCOAL. Imperfectly carbonized samples are of frequent occurrence. E. H. GANE.

CHERRY LAUREL WATER. Assays from 0.03 per cent to 0.1 per cent of Hydrocyanic acid. E. L. PATCH.

COCHINEAL. The "silver" variety is gradually disappearing and better grades are more easily obtainable. The "silver" variety had a high ash, the characteristic appearance being due to loading. Two samples of powdered purchased in the open market only yielded 3.24 per cent and 4.90 per cent of ash, where formerly 20 per cent to 30 per cent was common. E. H. GANE.

COLCHICUM SEED. One sample contained but 0.36 per cent Colchicine. E. H. GANE. One lot assayed 0.52 per cent. E. L. PATCH.

COLLODION. Two lots contained only 75 per cent of the official amount of soluble gun cotton. E. L. PATCH.

COLOCYNTH. Three lots contained ground seeds. H. H. RUSBY. Most of the product sold contains seed as well as pulp and prosecutions have been brought on this account. E. H. GANE.

(To be continued)

THE NUB OF THE QUESTION.

So long as a druggist wants to squeeze every last cent from his business he will keep his store open all night long and all day on the Sabbath. He will hide behind the stock excuse that drugs are needed by the sick at any and all hours, When he knows perfectly well that the legitimate sales of this character after seven or eight o'clock in the evening won't pay the gas bill, and when he realizes thoroughly that the emergency wants of the sick are supplied by the physician from his case. If he is too honest to advance this argument, he will plead the sacred nature of Custom, and say that the public expects drug stores to be open when other shops are closed, shutting his eye to the fact that the public formerly expected the same thing of grocery stores, but quickly adapted itself to a changed situation when the grocers developed self-respect and refused any longer to make slaves of themselves.

Sometimes the druggist will frankly confess the truth and admit that he is after the soda, the candy, and the cigar business which comes to him in the evening and on Sunday. This is the nub of the question—the very heart of the whole matter. The druggist frankly wants to extract every last cent from the business—and, by the Eternal, he is going to do it! The indignant editorials on the subject, the association papers, the committee reports, the eloquent debates at meetings—these all slide off his back more easily than a duck sheds water. He listens calmly—and then does as he pleases.—*Bulletin of Pharmacy.*

THE CHARITY OF JUDGMENT.

"We do not need to judge nearly so much as we think we do. This is the age of snap judgments. The habit is greatly intensified by the sensational press. Twenty-four hours after a great murder there is a difficulty in getting enough men who have not already formulated a judgment, to try the case. These men, in most instances, have read and accepted the garbled, highly-colored newspaper account; they have to their own satisfaction discovered the murderer, practically tried him and—sentenced him. We hear readers state their decisions with all the force and absoluteness of one who has had the whole Book of Life made luminant and spread out before him. If there be one place in life where the attitude of the agnostic is beautiful, it is this matter of judging others. It is the courage to say: "I don't know. I am waiting further evidence. I must hear both sides of the question. Till then I suspend all judgment." It is this suspended judgment that is the supreme form of charity."—*William George Jordan.*

Editorial Notes and Announcements

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All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

In giving change of address, always give both the old and the new address.

RULES OF CENSORSHIP.

1. All contracts for advertising are accepted subject to revocation at the discretion of the Publication Committee.

2. No advertisement will be accepted for any article or service, the sale or furnishing of which is illegal in the state of publication or in any state in which the JOURNAL circulates.

3. Advertisements will not be accepted for articles belonging to the class of preparations commonly known as patent medicines, nor for any medicinal preparation advertised directly to the laity, or which is advertised in such a manner as to encourage self medication.

4. Copy which is vulgarly or extravagantly worded, or which makes extravagant claims of therapeutic virtues will not be accepted.

5. No advertisement will be accepted which by intent or inference would result in deceiving, defrauding or misleading the reader.

FREE WHILE THEY LAST.

As long as the supply lasts, complete sets of the Bulletin, 6 vols. (except Jan., 1910,) will be supplied to dues paid members who request them.

These on binding, which should cost not to exceed 60 cents per volume, will form a handsome and valuable addition to any pharmaceutical library. In the future complete sets of the Bulletin will be scarce and valuable, and those who want them should apply now.

Members will be expected to pay freight or express, which, however, will be only a small amount.

The General Secretary is also prepared to send dues paid members, without charge, reprints of Dr. S. S. Cohen's address on the *Relation of the Pharmacopoeia to the Practice of Medicine,* an admirable aid in propaganda work with physicians.

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COMPLIMENTARY DINNER TO PRESIDENT GODDING.

The druggists of Boston and of Massachusetts tendered a complimentary dinner to President and Mrs. Godding, at the Hotel Vendome, Boston, Friday evening, February 20, at which they were made the recipients of a cut glass punch bowl, the presentation being made on behalf of the gathering by Mr. William C. Durkee.

C. Herbert Packard of East Boston, President of the Massachusetts College of Pharmacy, was toastmaster.

Brief addresses were made by J. Arthur Bean, representing the National Association of Retail Druggists; William H. Flint, President of the Massachusetts Board of Registration in Pharmacy; Fred L. Carter, Jr., President of the Boston Druggists' Association; A. C. Morey, representing the Boston Association of Retail Druggists, and Mrs. J. T. Waterhouse, President of Boston Chapter, Women's Organization of the National Association of Retail Druggists.

The musical program included songs by Mrs. W. H. Glover of Lawrence, James M. O'Brien of Roxbury, Miss Moshier of East

Boston and A. E. Orcott, and selections by an orchestra. The dinner was arranged by I. P. Gammon and C. Herbert Packard.

Among those present were: Mr. and Mrs. H. De Coster, Mr. and Mrs. C. A. Stover, Mr. and Mrs. C. F. Ripley, E. L. Patch, Mr. and Mrs. E. H. La Pierre, Mr. and Mrs. W. R. Acheson, Mr. and Mrs. I. P. Gammon, Mr. and Mrs. W. H. Glover, Mr. and Mrs. J. A. S. Woodrow, Mr. and Mrs. Turner, Mr. and Mrs. C. H. Davis, G. E. Coleman, Charles A. West, Dr. C. O. Thompson, W. H. Pierce, Mr. and Mrs. H. L. Emerson, John R. Sawyer, Mrs. F. J. Connolly, Mr. and Mrs. J. A. Bean, Mr. and Mrs. G. A. Kelly, Mr. and Mrs. W. C. Durkee, R. C. McGowan, A. W. Dowse, Mr. and Mrs. L. D. Drury, Mr. and Mrs. H. L. Bruce, D. Wolff, Mr. and Mrs. J. T. Waterhouse, Mr. and Mrs. F. L. Carter, Mr. and Mrs. W. S. Briry, Prof. J. O. Jordan, Mr. and Mrs. F. W. Connolly, T. E. Burns, E. C. Marshall, Mr. and Mrs. J. M. O'Brien, Mr. and Mrs. A. C. Morey, Dr. J. H. Perry, Mr. and Mrs. M. J. McIntye, L. Parent, W. H. Doherty, Col. John W. Low, Mr. and Mrs. F. M. Foster, Mr. and Mrs. L. W. Griffin, Mrs. Staples, W. Curtis Glover.

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LEST YOU FORGET.

The SIXTIETH ANNUAL CONVENTION of the A. Ph. A. opens August 19, 1912, at Denver, Colorado, the Brown Palace Hotel being official headquarters. This will be one of the greatest conventions ever held by the Association, in a city located in close vicinity to some of the most interesting natural features on the Continent. The Denver people are making great preparations for the entertainment of their visitors. One of the items will probably be a day's excursion through and up the mountains. Those who attended the last convention at Denver remember the interesting trip to Silver Plume, over the famous Georgetown Loop. The excursion now planned will pass through a still more picturesque region.

You can attend this convention if you think so, and begin to plan for it now. It will afford the opportunity for a trip the memory of which will always remain with you, and at comparatively small expense, probably not more than the cost of a two weeks' trip to the seaside.

NON RECEIPT OF THE JOURNAL

The disappointment of the member who does not receive his JOURNAL promptly is mild compared to the disappointment of the Editor who has gone to the trouble of preparing the publication for the sole purpose of having it distributed to subscribers.

Thus far the most common reason for non-delivery has been the failure of dues paid members to request that they be entered on the subscription list, as required by the postal regulations. Other reasons have been the changing of address without notifying the General Secretary, the difficulty of preparing an accurate mailing list from the records, while some failures are apparently chargeable to the natural perversity of material things.

It is believed, however, that the mailing list of those entitled to receive the JOURNAL is now fairly accurate, and that subscribers may expect prompt delivery in the future.

If a copy is not received when it should be, subscribers are requested to notify the Editor at once. A postal card will be sufficient.

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COÖPERATION OF LOCAL PHARMACEUTICAL SOCIETIES.

In many of the larger cities there are two or more local druggists' societies, as the local R. D. A., Academy of Pharmacy, A. Ph. A. Branch, etc., each separate in organization, but having many members in common.

Naturally in such a time-exacting business as pharmacy, it is desirable to reduce to a minimum the number of meetings which must be attended.

In the writer's opinion much can be accomplished in this direction by an affiliation of, or the formation of a working agreement between all of these local societies, with a corresponding saving of effort and increased efficiency, at the same time preserving the separate identity of each organization.

One method by which this can be effected is by having a common time and place for meetings, with either a division of the time between the different societies, or a joint program, either monthly or on alternate months.

As a consequence of their present separate existence it often happens that unless some matter of great importance is to be considered the attendance is small—one of the frequent entries in the secretary's record being "No quorum present."

By combining forces in the manner sug-

gested, the attendance is increased, a good program is assured, and the members of all of the local societies are brought into closer touch with each other. Questions of general business policy, matters of legislation, or other subjects upon which there is likely to be a difference of opinion, can be discussed and agreement reached, the results of which will react to the favor of the entire druggist community.

Once a year, or as much oftener as may be necessary, the several societies can hold separate meetings for the election of officers, and for the transaction of business pertaining strictly to their own organization.

No doubt experience would quickly enable the affiliating societies to develop improvements upon the plan suggested, and which would soon be adopted by societies in other cities.

Which druggist community will be the first to try out the plan?

Matters of General Interest

WILEY'S OWN STATEMENT ON RESIGNING.

On April 9, 1883, I took the oath of office and entered on the discharge of my duties as chief of the Bureau of Chemistry, in the Department of Agriculture.

For the past twenty-nine years I have endeavored to discharge these duties according to the dictates of my conscience, the knowledge at my command, and the obligations of my oath.

In retiring from this position after so many years of service it seems fitting that I should state briefly the causes which have led me to this step. Without going into detail respecting these causes, I desire to say that the fundamental one is that I believe I can find opportunity for better and more effective service to the work which is nearest my heart, namely, the pure food and drug propaganda, as a private citizen than I could any longer do in my late position.

In this action I do not intend in any way to reflect on the position which has been taken by my superior officers in regard to the same problems. I accord to them the same right to act in accordance with their convictions, which I claim for myself.

After a quarter of a century of constant discussion and effort the bill regulating interstate and foreign commerce in foods and drugs was enacted into law. Almost from the very beginning of the enforcement of this act I discovered that my point of view in regard to it was fundamentally different from that of my superiors in office. For nearly six years there has been a growing feeling in my mind that these differences were irreconcilable and I have been conscious of an official environment which has been essentially inhospitable. I saw the fundamental principles of the Food and Drugs Act, as they appeared to me, one by one paralyzed or discredited.

It was the plain provision of the act and was fully understood at the time of the enactment, as stated in the law itself, that the Bureau of Chemistry was to examine all samples of suspected foods and drugs to determine whether they were adulterated or misbranded and that if this examination disclosed such facts the matter was to be referred to the courts for decision. Interest after interest, engaged in what the Bureau of Chemistry found to be the manufacture of misbranded or adulterated foods and drugs, made an appeal to escape appearing in court to defend their practices. Various methods were employed to secure this end, many of which were successful. I found that one by one the activities pertaining to the Bureau of Chemistry were restricted and various forms of manipulated food products were withdrawn from its consideration and either referred to other bodies not contemplated by the law or directly relieved from further control. A few of the instances of this kind are well known. Among these may be mentioned the manufacture of so-called whisky from alcohol, colors, and flavors; the addition to food products of benzoic acid and its salts, of sulphurous acid and its salts, of sulphate of copper, of saccharin and of alum; the manufacture of so-called wines from pomace, chemicals, and colors; the floating of oysters often in polluted waters for the purpose of making them look fatter and larger than they really are for the purposes of sale; the selling of moldy, fermented, decomposed and misbranded grains; the offering to the people of glucose under the name of "corn sirup," thus

*Reprinted from the *Journal of the American Medical Association.*

taking a name which rightfully belongs to another product made directly from Indian corn-stalks.

The official toleration and validation of such practices have restricted the activities of the Bureau of Chemistry to a very narrow field. As a result of these restrictions I have been instructed to refrain from stating in any public way my own opinion regarding the effect of these substances on health and this restriction has interfered with my academic freedom of speech on matters relating directly to the public welfare.

These restrictions culminated in the summer of 1911 with false charges of misconduct made against me by colleagues in the Department of Agriculture, which had it not been for the prompt interference on the part of the President of the United States, to whom I am profoundly grateful, would have led to my forcible separation from the public service. After the President of the United States and a committee of Congress, as a result of a searching investigation, had completely exonerated me from any wrong-doing in this matter, I naturally expected that those who had made these false charges against me would no longer be continued in a position which would make a repetition of such an action possible. The event, however, has not sustained my expectations in this matter. I was still left to come into daily contact with the men who secretly plotted my destruction.

I am now convinced that the freedom which belongs to every private American citizen can be used by me more fruitfully in rallying public opinion to the support of the cause of pure food and drugs than could the limited activity left to me in the position which I have just vacated. I propose to devote the remainder of my life, with such ability as I may have at my command and with such opportunities as may arise, to the promotion of the principles of civic righteousness and industrial integrity which underlie the Food and Drugs Act, in the hope that it may be administered in the interest of the people at large, instead of that of a comparatively few mercenary manufacturers and dealers. This hope is heightened by my belief that a great majority of manufacturers and dealers in foods and drugs are heartily in sympathy with the views I have held and that these views are endorsed by an overwhelming majority of the press and the citizens of the country.

H. W. WILEY.

N. A. R. D. ACTIVITIES.

CHARLES MYLERT CARR, Editor N. A. R. D. NOTES.

One of the important features of the work of the National Association of Retail Druggists during recent months has been that of looking after National legislation. The climax to the fight against Parcels Post came when the Post Office Appropriation bill was introduced and embodied a section which will inaugurate, unless eliminated from the bill, a full-fledged rural parcels post system, and create a commission to consider plans for the establishment later of a general parcels post. March 18th is the date set apart by the friends of the bill to write their Congressman and Senators, and the opponents of the measure at once decided to make use of the same date to send their protests to Washington. N. A. R. D. Notes of March 14th was devoted largely to this issue and contained an editorial appealing to all druggists to become active in this letter-writing campaign. Officers of affiliated associations were requested to devote sufficient time on March 18th to line up not only the drug trade of their respective communities, but all other retail mercantile interests as well, in the absence of other National associations securing the cooperation of their respective constituencies. In the language of Notes, "It is now or never,' 'and by the time this page reaches the readers' eye, the battle of letters to our legislators at Washington will have been fought and the victory, we believe, will be on the side of the most letters.

THE RICHARDSON BILL.

The Richardson Bill designed to so amend the Pure Food and Drugs Act as to make misrepresentation of drug products including proprietary medicines dangerous and expensive, seems to be one of the "storm centers" of comment and discussion at Washington. The bill was introduced by Congressman Richardson for the purpose of carrying into effect President Taft's recommendation to Congress which followed the famous decision of the United States Supreme Court in the Johnson Cancer Cure Case. Congressman Richardson had also consulted Dr. Wiley and as "the wagon was going to the mill," it was decided to carry a full load. It is the apparent design of the bill to place the sale of all medicinal preparations containing toxic and habit-forming drugs under the jurisdic-

tion of the pharmacist constituting him, along with the physician, as the guardians of public health so far as the manufacture and sale of medicinal products are concerned.

The principle of the Richardson Bill was strongly endorsed by the N. A. R. D. Convention at Niagara Falls, and while the bill itself exhibits many inaccuracies and incongruities, necessitating a redrafting of the same, it will probably become a law with the backing of the better element in all branches of the drug trade.

THE TENTATAVE FOOD AND DRUG DECISION.

The tentative food and drug decision, issued by Dr. Wiley's Department, designed to make the enactment of the Foster Bill unnecessary, has also occasioned much discussion. It is believed by a great many deep thinkers in the drug trade that the tentative decision, if permanently adopted, will provide machinery which will protect the public against the illicit sale of Cocaine and other habit-forming drugs. One hearing has been held to consider the merits and demerits of this bill, and another hearing is scheduled for about March 20th. The public sentiment outside of the drug trade is such that corrective measures are sure to be adopted. Dr. Hamilton Wright, the Opium Commission of the United States, has just returned from abroad with added information which will fortify him in his campaign for a system of registration that will put the federal government in possession of every transaction involving the sale of this class of drugs, the prescribing or dispensing thereof by physicians, etc., whether the party concerned is importer, wholesaler, retailer or physician.

AMENDMENT TO THE SHERMAN ACT.

There are two large matters that have been engaging the attention of the N. A. R. D. Executive Committee and N. A. R. D. Counsel since the meeting of the Executive Committee in Chicago last December. One is the draft of a bill to amend the Sherman Anti-Trust Act so as to enable organizations of business men formed not for profit to work along cooperative lines for their mutual protection and advancement, drawing the line between such corporations and industrial and other corporations organized purely for profit. This bill has been drafted by Special Attorney Frank H. Freericks and is now receiving its finishing touches at the hands of the Committee on Legislation and the National Executive Committee. This bill may or may not be introduced into the present Congress, the deterining factor being political and other conditions. It is the desire of the National officers to introduce this bill at a time which will enable it to receive the widest publicity and the most serious consideration.

PRICE PROTECTION.

The other proposition deals with price-protection. The Executive Committee instructed Special Attorney Freericks to work out the details of a plan which will combine the Miles plan with the Boehm plan, the latter plan having been outlined in detail in N. A. R. D. Notes and many other pharmaceutical journals. It is expected that this plan will be ready in a very short time when it will be published in Notes and criticism invited from all quarters.

SECOND MID-YEAR MEETING OF EXECUTIVE COMMITTEE.

The latest news development in N. A. R. D. work is the decision to hold the second between-conventions meeting of the Executive Committee in Chicago during the first week of April, the first session being held Tuesday morning. One of the principal matters to be considered at this meeting of the Committee will be the place and date of holding the next annual convention. Portland, Ore., and Cedar Point, O., are the principal bidders. Several other cities have been mentioned recently as possible bidders,—Kansas City, Minneapolis, Cincinnati, and Savannah.

THE PROPAGANDA CAMPAIGN.

The U. S. P. and N. F. propaganda work carried on by the N. A. R. D. is meeting with great success and has the most hearty approval and cooperation of the medical profession. It has been a movement of steady progress from its very inception. Beginning in January, 1909, a little over three years ago, it was with a feeling of skepticism that the prime movers of the movement in the N. A. R. D. looked upon the future of the work.

It was apparent that the physicians were ready for a change in their armamentarium, for the use of specialties was fast proving to the thinking members in the medical profession the secret preparations to be ineffective and that reliance upon them in the future would constitute a very serious handicap to medical progress.

In this respect, therefore, it was surmised

that the movement would prove immensely popular and such indeed it has proven to be. The real concern was felt when the druggists themselves were considered: How would they cooperate with their association and with their brother druggists to make the movement the success it deserved to be? While it is true that druggists as a whole are not so well informed of the needs of a better medicinal armament for the medical profession as are the physicians, they have displayed a most commendable spirit by "getting in line," thereby making up for any defects manifested in the past.

BETTER PHARMACISTS NOW.

It is one of the most promising signs of the times that pharmacists today are much better pharmacists than they were three, four and five years ago, and much of this betterment can be directly traced to the N. A. R. D. propaganda campaign and the incessant hammering of N. A. R. D. Notes on the benefits of better laboratory and prescription facilities in the pharmacy, and on the need for more thorough pharmaceutical education.

The propaganda literature sent out by the N. A. R. D. to the physicians of the country has improved from year to year in appearance and style, as well as in the educational character of the literature itself, until today it consists of a neat 20-page monthly pamhlet, entitled "Monthly Therapeutic Topics." This pamphlet is sent as first-class mail and is accompanied by a card bearing the druggist's name or, in case a local association is doing the work, this association's name is printed on the pamphlet itself.

"Monthly Therapeutic Topics" gives an accurate and detailed description of three official preparations each month, including the composition, dosage, pharmacological action, incompatibilities, methods of administration, etc.; also an expose of fraudulent and misbranded drug products, as well as other matters of importance to medical practitioners.

MEDICAL JOURNAL SPACE SECURED.

The success of the movement in general and the physician's need of this kind of information has induced a number of medical journals to devote some space to the subject. As any as thirty of these journals have opened departments headed "Official Preparations," and the matter is being furnished by the N. A. R. D. This is surely good news and this space will undoubtedly prove of lasting benefit to the U. S. P. and N. F. propaganda. These friendly medical journals are to be highly commended for the advanced stand taken and the appreciated efforts they are making to supply their physician subscribers with reliable information regarding the U. S. P. and N. F. preparations.

With the beginning of 1912 still another plan has been put into operation. This consists of sending a series of monthly letters to druggists and dispensing physicians, the intent of which is to reduce the practice of counter prescribing by pharmacists and dispensing by physicians to a minimum through educational methods. While all recognize these practices as unethical, few have given them enough thought and attention to realize that they are also money-losing propositions as well.

With the three plans mentioned in good working order, it will readily be seen that pharmacy is progressing and will sooner or later again come into its own. The one thing necessary is the undivided moral and financial support of the pharmacists themselves, for the benefits of the propaganda movement are in direct ratio to the amount of energy and money expended.

In such cities as Boston, Chicago, Cleveland, Cincinnati, St. Louis, Savannah, and scores of others, where the work is consistently carried on, the prescription files of pharmacists are mute but powerful witnesses that the money and labor expended are producing worth-while financial benefits.

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THE NAMING OF MEDICINAL PRODUCTS.

The following circular letter has been addressed by the Council on Pharmacy and Chemistry of the A. M. A. to the manufacturers of and dealers in medicinal products:

The Council on Pharmacy and Chemistry of the American Medical Association, since its organization, has been obliged to refuse recognition to a number of otherwise unobjectionable preparations, because their names were considered detrimental to the best interests of the public and the medical profession. In the hope that in the future those who introduce new remedies may see their way clear to adopt names which will not be open to objection, the Council has decided to

issue this explanatory statement to the manufacturers of medicinal substances.

The trade names of pharmaceutical preparations or mixtures should be so framed as to indicate the most potent ingredients. An article whose name gives a false impression in regard to its identity or origin or which is in other ways misleading would not be acceptable for New and Nonofficial Remedies. An article will not be acceptable if its name suggests to the laity the diseases or conditions in which it is said to be indicated.

After December 31, 1912, recognition will be refused also to names so framed as to indicate even to physicians the diseases or conditions for which the article is to be used. The Council will make no objection to articles submitted to it before December 31, 1912, on the ground that the name is suggestive to the physician, provided that the name is already in use at the time of submission and also provided that the name is so framed as not to be liable, in the judgment of the Council, to lead to self-medication on the part of the public.

Medicine, in common with other branches of knowledge, requires that the subjects with which it deals be provided with a rational, descriptive nomenclature. The Council holds it desirable and important not only that the medicaments official in the pharmacopeias should be provided with scientific names, but that those of a proprietary character should also have names which are descriptive of their composition. Further, the Council believes that the interests of both the manufacturer and the consumer, the physician and his patient, can be sufficiently safeguarded if to the descriptive name of an article there be appended a distinctive word, syllable, initial or sign that shall identify its manufacturer. In substantiation of this it may be stated that such designations have permitted manufacturers to build up almost world-wide reputations for their products. Reference need only be made to chloral hydrate, Schering; chloroform, Squibb; phenacetin, Bayer; quinin sulphate, P. W. R.; sodium salicylate, Merck, etc. In view of these considerations, the Council offers its endorsement and cooperation to any effective movement toward the establishment of a rational, and if possible, international system for the naming of medicaments.

However, the Council recognizes that trade conditions make difficult or infeasible, at this time, the adoption of such a rational system of nomenclature. But, on the other hand, experience has shown it possible to give names to new remedies which at least shall indicate their principal constituents. Thus among the articles described in "New and Nonofficial Remedies" appear such names as arsenoferratin, an organic compound of iron and arsenic; Bornyval, a valeric acid ester of borneol; brovalol, a bornyl bromvalerate; carbosant, a carbonate of santalol; guaiacodein, a compound of codein and guaiacol; tannismuth, a tannate of bismuth. Therefore the Council recommends that all remedies be given names which shall at least be suggestive of their most characteristic or potent constituents. The Council gives the fullest recognition to the principle that a discoverer has the right to name his discovery and interposes no restriction in the naming of new substances, provided that such names shall not be detrimental to the progress of medicine and thereby work against the welfare and health of the people.

Names which are suggestive of the diseases or conditions in which the remedy is said to be indicated are objectionable because the layman becomes familiar with the names of such remedies and their uses through physicians' prescriptions and is thus led to use them in indiscriminate and harmful self-medication. The many cases of harmful self-medication with such remedies as migrainin, diabetin, purgen, antikamnia, antitussin, which preparations at first were exploited to medical men only, are sufficient to show that such names should be forbidden.

But even if the name of a remedy does not disclose its proposed use to the laity, it is still objectionable if it suggests to the medical man the diseases or conditions in which the remedy is to be used. This for the reason that the thoughtless physician will base his use of the remedy on the name without giving due consideration to the condition and symptoms of the patient.

Recognizing that some therapeutically suggestive names have been applied without any intention of appealing to the laity thereby, and further recognizing the difficulty of changing a name once established, the Council has decided to make no objection to names that are now in use if they are therapeutically suggestive to physicians only. Such articles, if on the market and submitted prior to December 31, 1912, will be considered ac-

ceptable in so far as their names are concerned.

The following rules apply to the names of articles proposed for inclusion with New and Nonofficial Remedies:

1. The names of pharmaceutical preparations or mixtures must indicate the most potent ingredients.

2. Names which are in any way misleading will not be accepted.

3. Names which suggest diseases, pathologic conditions, or therapeutic conditions will not be admitted, except as provided under 4.

4. An exception is made for established names of synthetic substances, active principles, and other new substances: For these if submitted prior to December 31, 1912, therapeutically suggestive names may be admitted, provided that the name has been in actual use prior to December 31, 1912, and provided further, that the name is not likely to foster self-medication by the laity.

W. A. PUCKNER, Secretary.

Communications and Correspondence

All communications must be signed by their Authors

BAITING JOURNALISM.

I have nothing but praise for our new Journal, for the subject-matter, choice of articles, judgment even to the selection of the page paper, and color of the cover. I feel confident that our Journal will exercise due diligence to exclude communications which are based on personal grudges paying back old scores, hitting back because some member of the A. Ph. A. has seen a chance to get even with some other member who is a personal antagonist, etc., etc.

The new Journal has a fine opportunity to uplift the whole profession of pharmacy by dealing with public questions of prime importance in a dignified manner free from yellow journal methods or muck-raking propensities now so popular. Honest criticisms, of course, and helpful comments, which improve and uplift even if they destroy cherished ideals, are demanded when occasion arises; evils must be combated in a fearless spirit, but sensationalism, simply for the purpose of arousing the interest of the readers by "exciting the animals" is to be deprecated. Smart writing, ridicule, sarcasm, unjust attacks, and, above all, *baiting* to provoke replies is a mean way to obtain copy.

You have asked for suggestions: These are tendered in a spirit of helpfulness. That you have avoided pitfalls of this kind in professional journalism amply proves the judgment of those who unanimously elected you as editor. Very truly yours,

JOSEPH P. REMINGTON.

COMMITTEE ON PRACTICAL PHARMACY AND DISPENSING BULLETIN NO. 1.

The practice of pharmacy today is not that of a few years ago, nor even of yesterday. We have but to retrace our steps a few years into the past to marvel at the rapid strides our profession has in reality made. The attempt to keep apace with this onward march of progress in matters pharmaceutical is the ultimate aim and function of our Association. To foster the good work and to make secure our continued prosperity ought to be the chief duty of each and every member.

Innumerable opportunities for individual work along many different lines present themselves to our fellow-pharmacists almost continually, e. g., the enormous task of revision of both our official text books furnishes an abundant field for suggestion and experimentation in practical pharmaceutical work. Papers on practical or operative pharmacy; notes or suggestions for the manipulation or improvement of official preparations; original articles or ideas pertaining to the science or art of pharmacy are particularly desired.

The Committee on Practical Pharmacy and Dispensing at this time would respectfully urge upon its members the desirability of engaging in some phase of this work to the end that our meetings at Denver may enjoy the benefit of such original work. The appeal is made thus early in order that all who so desire may have ample time for preparation.

Fraternally yours,

P. HENRY UTECH, Chairman.

J. LEON LASCOFF, Secretary.

Council Business

COUNCIL LETTER NO. 14.

PHILADELPHIA, Feb. 26, 1912.

Motion No. 29 (*Election of members; applicants Nos.* 128 *to* 163, *inclusive*) has received a majority of affirmative votes.

Motion No. 30 (*Request of Druggists' Circular*). Moved by Otto Raubenheimer, seconded by Ambrose Hunsberger, that the request of the Druggists' Circular (Council Letter No. 10, p. 19,) for permission "to publish a commentary on the various formulas contained in the work N. F., somewhat as the authors of the dispensatories have published comments in the text of the Pharmacopœia, and to quote extensively from the book," be referred to the Committee on Publication.

Of the nominees for the committee of three to act with a similar committee of the American Medical Association on legislation affecting jointly medicine and pharmacy (C. L. No. 13, p. 27,) the foliowing have received the highest number of votes: J. H. Beal, J. P. Remington, and W. S. Richardson.

The following communication has been received:

"To the Members of the Council:

My attention has been called to the action taken at the Boston meeting with reference to the appointment of a committee from the American Pharmaceutical Association to act in conjunction with delegates or a committee from the various allied drug associations, to jointly consider legislative matters that are pending, and the presentation of changes and amendments and necessary legislation.

This should receive attention, and a discussion of the subject will be in order. It may be well to point out, also, that a committee is to be elected by the American Pharmaceutical Association to act with a similar committee of the American Medical Association on matters of legislation *affecting jointly the professions of medicine and pharmacy.* The powers of this committee are limited, it having been expressly provided by the Association at the Boston meeting, that 'The reports of said joint committee shall be presented to both the A. Ph. A. and the A. M. A., but no formulation of legislation shall be taken as having received the endorsement of either association unless the same shall have been formally approved by resolution.' In other words, the committee is to advise and discuss, and then recommend action by the Council or the Association.

W. S. Richardson, of the City of Washington, is Chairman of the Committee on Legislation of the N. A. R. D., and also of the Committee on National Legislation of the A Ph. A. The Chairman makes this suggestion: That the Council select a committee of three, of which the Chairman of the Committee on National Legislation of the A. Ph. A. shall be Chairman, to consider the possibility of closer cooperation between the American Pharmaceutical Association and other *pharmaceutical* organizations in the matter of legislation pertaining to these interests.

The Chairman takes this opportunity of asking that his name be not considered for the Committee on Legislation to act with a similar committee from the American Medical Association.

E. G. EBERLE, Chairman."

Motion No. 31 (*Co-operation in Pharmaceutical Legislation*). Moved by Ambrose Hunsberger, seconded by J. W. England, that the Chairman of the Council appoint a committee of three, of which the Chairman of the Committee on National Legislation of the A. Ph. A. shall be chairman, to consider the possibility of closer co-operation between the American Pharmaceutical Association and other pharmaceutical organizations in matters of legislation affecting pharmacy.

J. W. ENGLAND, Secretary.

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COUNCIL LETTER NO. 15.

PHILADELPHIA, March 4, 1912.

Members of the Council:

Motions No. 30 (*Request of Druggists' Circular*) and *No.* 31 (*Co-operation in Pharmaceutical Legislation*) have each received a majority of affirmative votes.

The necessity for co-operation between pharmaceutical organizations in matters of pharmaceutical legislation is very apparent in connection with the Richardson Amendment to section 6, 7 and 8 of the food and drugs act. This measure (H. R. 14060) was prepared by Representative Richardson, of Alabama, by the request of the House Committee on Interstate and Foreign Commerce, to carry into effect recommendations made by President Taft with reference to proprietary medicines and the therapeutic claims on labels of medicinal preparations.

It is probably the most important food and drug legislation proposed since the adoption of the national food and drugs act of June 30, 1906.

It is not necessary to discuss the Richardson amendment in this letter, save only to

say that while the intent of the bill is in harmony with principles long advocated by the American Pharmaceutical Association, regarding the sale of nostrums and unwarranted claims for the same, the bill itself is badly phrased and conveys a different meaning than that obviously intended.

The bill as it now stands will be heard by the House Committee on Interstate and Foreign Commerce at an early date, and it is most important that representatives of pharmaceutical organizations (which represent the interests of pharmacists) meet together in advance of the hearing, so that the united opinions of pharmaceutical interests shall be presented, and a practicable law passed.

W. S. Richardson, of Washington, D. C., Chairman of the Committee on National Legislation of the A. Ph. A., has taken up this subject very energetically. He has with him on the committee: J. C. Wallace, F. A. Hubbard, C. Koch and E. G. Eberle. He desires to call a meeting of the Committee on National Legislation of the A. Ph. A. at Washington to consider the Richardson amendment with members of the corresponding committee of the N. A. R. D., and proposes to do this at a date about one week in advance of the hearing, when he will "wire" all interested parties. Mr. Richardson asks that the Council make an appropriation to pay the expenses of the members of the Committee on National Legislation of the A. Ph. A., while going to, from and in Washington, and since all the members of the committee will probably not be able to attend the meeting, he estimates that $100 will be sufficient to meet the expenses.

Your Secretary has presented this matter to your Finance Committee and this committee has approved such an appropriation.

Motion No. 32 (*Appropriation of* $100 *to Committee on National Legislation*). Moved by J. P. Remington, seconded by J. W. England, that the sum of one hundred dollars, or as much of it as may be necessary, be appropriated to pay the expenses of the members of the Committee on National Legislation, A. Ph. A., while going to, from and in Washington, in the consideration of the Richardson Amendment of the food and drugs act, and such other proposed legislation as may affect the interests of our membership.

Mr. Richardson has had a conference with Dr. Hamilton Wright in regard to the decisions of the Hague Conference, and it might be desirable for the committees to consider, also, the subject of narcotic legislation as affecting pharmacists.

Do you approve the motion? If at long distance, please "wire."

J. W. ENGLAND, Secretary.

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.

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PERSONAL RECOLLECTIONS OF DR. ENNO SANDER.

The characters which constitute individuality and express the personality of a man are better gathered from the recollections of those who knew him and worked with him than from the historical details of a formal biography. The latter merely catalogs him as a human unit; the former show us the man himself and betray the touches of nature that mark his kinship with other men.

That our late fellow member, Dr. Enno Sander, was something more than a census unit, and that he possessed a peculiarly marked and pleasant personality is well shown by the following recollections of some of those who knew him intimately and loved him well.

BY PROF. JOSEPH P. REMINGTON.

It is hard to realize that this staunch friend of everyone, and genial spirit has departed this life. He became a member of the American Pharmaceutical Association in 1858 and for 54 years his loyalty has never been questioned, nor did his interest abate. He was elected President in 1871 and has been a conspicuous figure at the meetings of the Association during a long period. Enno Sander was well read, he had a strong liking for scientific pursuits, a mind capable of grasping facts and a heart swelling with love for his friends. His industry was remarkable, especially when working on the subject of the analysis of mineral waters, in which he had

been interested for many years. Two years ago when the writer called on him, in St. Louis, although suffering then from the malady which caused his death, he was found working in his laboratory, and he came out into the office just as he was, with hands outstretched and his face beaming with delight at seeing an old friend. His pain was forgotten, and he was soon rehearsing events and depicting scenes which had been mutually enjoyed. In the city of St. Louis the death of Enno Sander will especially cause great sorrow. In no event in which Pharmacy or Chemistry was a moving cause of a meeting or celebration was Enno Sander omitted. Of late years his illness kept him from attending scientific or social gatherings, but the grand old man preserved to the last a lively interest. He especially was fond of the society of young men, and young men were attracted to him. He was approachable and everyone felt that he could tell his story to Enno Sander, and be sure of sympathy and help, if it was in his power to extend it.

His death is really a National loss and his friends cannot help feeling that his sufferings have won their sympathies, and they grieve when they fully realize that his Spirit has fled.

BY DR. J. M. GOOD.

We are now confronted with changed conditions here in St. Louis.

The members of the American Pharmaceutical Association, generally, together with those of this city specifically, must adapt themselves to the change and think of St. Louis, sine Enno Sander.

Because of his advanced age, his numerous friends in commercial and professional life, as found in three distinct, successive generations, the sense of loss which follows his departure is very widely felt. That he was keenly interested, to the last, in matters medical, pharmaceutical and scientific, is shown by the esteem in which he was held by those who are actively interested in the Medical Colleges, the College of Pharmacy and the Academy of Science. Prominent members of each profession every one of whom felt in his death a personal loss, were present at the funeral services. These obsequies were of a character to meet the approval of all who are opposed to ceremonial or ostentatious display on such occasions.

They were such as would have met with his approval were he attending the funeral of a friend. The speaker of the occasion pronounced no eulogy upon him but the tribute which he paid to Dr. Sander's life and personal characteristics was recognized as apt and fitting.

Just now our sense of loss is keen. The lives of men like Procker, Parrish, Ebert, Maisch and others who were his contemporaries and friends and appreciated his ability loom up large in perspective as time passes.

BY W. BODEMANN.

I loved and admired Enno Sander for what he was not. He was *not* a sycophant, *not* a Tartuffe, and I have often enjoyed his outbreaks of "furor teutonicus" when aroused by the charlatanry and hypocrisy of others. He had his own convictions and expressed them most graphically, caring little whether they were liked or not.

During the last 15 years I had to spend three or four days at a time in St. Louis twice a year, and made it a point to stop at the hotel where Dr. Sander lived, so as to enjoy his company. Generally he managed to sandwich in a lunch at Faust's, with Dr. Whelpley as the third, and I must say I never knew a man who excelled Dr. Sander as a host in wit, conversational talent and good cheer.

He never married because, as he used to say, the ladies all loved him and he was too kind to hurt their feelings by marrying one, and he objected to marrying them all.

During the year of Searby's Presidency of the A. Ph. A., Searby and I spent an evening with Dr. Sander till 9 p. m., then retired to Searby's room—and I dropped from the frying pan into the fire. Searby was the gayer of the two and we engaged in a most lively and fascinating conversation about pharmaceutical cripples till the early morning separated us—never to see Searby again.

Enno Sander was a member of the Anhalt Chamber of Deputies at the time when Herman Raster, the afterwards famous Chicago editor, was official Reporter of the Chamber. Both had to leave the Fatherland on account of their love of liberty, in fact Dr. Sander was sentenced to death and was helped to escape by a student friend who was an official, as I learned a few years ago from this man's daughter. I many times tantalized the Doctor by pointing to his "criminal record." That's the way the fatherland treated the

elite of her children. The United States had the benefit of it.

It gave Wisconsin the Latin farmers, and to the nation such men as Schary, Knapp, Pretorius, Raster, Hecker and a legion of others.

Sander lived within 14 days of 90 years and, as he loved to say, was 90 years young. His was indeed a life of sunshine; he loved and gave sunshine freely, and I am proud of having had the privilege to bask in it.

Last but not least, Enno Sander was the oldest associate member of the C. V. D. A.—this most aristocratic as well as most democratic of Pharmaceutical bodies, and he enjoyed to attend the "annuals," and we all were glad to have him with us.

BY DR. O. A. WALL.

In June, 1864, I graduated from the City University in St. Louis, a school conducted by Prof. Edward Wyman, father of the late Surgeon-General Walter Wyman, who was my schoolmate. I had made up my mind to become a physician, and as my father suggested that the only way to become a thoroughly qualified one was to start at the bottom and learn all there was to learn, which included a preliminary study of pharmacy, he called on Dr. Enno Sander, whom he much admired for his ability and reputation as a pharmacist, and arranged to have me enter as an apprentice in Dr. Sander's drug store.

While St. Louis had a quite a number of drug stores at that time, it will be generally conceded by our older citizens that the most pretentious and best equipped stores were Dr. Enno Sanders', under Barnum's Hotel on Second and Walnut streets, Sennewald & Lange's on Third and Market streets, and Maurice Alexander's on Fourth and Market streets; so it was my good fortune to be apprenticed in one of the leading pharmacies of the city. These stores were conducted in the old-fashioned professional way with but few side-lines, and even these were more or less closely related to the drug business, as pure spices and flavoring extracts, etc. As the leading physicians of that day were Germans, most of the best prescription physicians of that day were Germans, and most of the best prescription business came to Sander's or Sennewald's drug stores. My apprenticeship was also on the German plan, i. e., pay for my work was to be instruction in the business of pharmacy.

We made our own pharmaceuticals, the manufacture of these goods not having developed as it has since; still, Dr. Sander had started a laboratory for drug and spice grinding, flavoring extracts, powdered spices, etc.; this laboratory was only two blocks away, on Myrtle, between Second and Third streets, and we clerks were often sent to the laboratory when business was quiet in the drug store, or vice versa, wherever we could help most or learn most at the time.

The U. S. Pharmacopœia was not so generally in use as it is now, and most of our work was done according to the German and other European pharmacopœias, according to the preferences of the physicians whose prescriptions we dispensed. I remember especially one physician who designated the preparations of the Bavarian Pharmacopœia, and another who used mainly the "Rademacher" preparations. The part of St. Louis known as "French Town" lay east of Fourth street, and extended from about Market to Convent streets; it was practically the old city, with the limits as prior to about 1836; it was inhabited by many of the old French settlers and their descendants, as well as by Germans who arrived later, and much of the business of Dr. Sander's drug store came from this old section of the city with its varied nationalities and varied household remedies requirements. Dr. Sander prided himself on never substituting. A German physician could rely on getting his preparation compounded according to the pharmacopœia he preferred, the Bavarian being perhaps most frequently specified. Likewise, a French physician could get his prescriptions filled with preparations made according to the French Codex.

At that time many people believed in the charms and hoodoos described in the "Seventh Book of Moses" (a book of magic) and we kept for sale many of the ingredients required for these formulas. A customer who called for bear's fat, deer's tallow, goose-grease, rattlesnake oil, or even *"Axungia Hominis,"* was sure to get the genuine article. Skinks, cellar bugs, rasped harts' horn, etc., were some of the animal substances for which we had occasional calls. *Oleum petrae*, rock-oil, mineral oil, was petroleum skimmed from certain streams in the East in territory now known as the "oil-fields." Grape-sugar was made from grapes or raisins and cost about a dollar a pound; we kept both Rus-

sian and Chinese Rhubarb, the Russian retailing at about $1 an ounce.*

Among the French people the fat of dogs was considered superior to cod-liver oil as a remedy for consumption, and we frequently rendered this fat at the laboratory on Myrtle street; on one occasion the dog from which we had taken the fat looked so appetizing that the Superintendent, Mr. Scheffer (afterwards of Larkin & Scheffer), my fellow-clerk, Alois Blank, and I got the engineer, whom I knew only as "August," to roast it on a spit, and we found it quite good eating.

I mention these things merely to show how conscientious Dr. Sander was in his determination not to substitute, but to sell only the right goods.

Having to make preparations from so many pharmacopœias, Dr. Sander's apprentices had unusual opportunities for experience. Dr. Sander would assign definite lessons for the week; to be read or studied, and either he or one of his partners would hear us when we were not otherwise too busy, usually on Sundays. Even after beginning the work with Dr. Sander, I continued to go to the City University three hours a week for instruction in Latin, and for this reason Dr. Sander jokingly referred to me and addressed me as "Herr Professor."

About this time the St. Louis College of Pharmacy was organized, Dr. Sander being one of the most active and enthusiastic of its founders and promoters. When the College was ready to receive students, Dr. Sander sent both Alois Blank (who later became a prominent pharmacist) and myself to hear the College lectures, for which he paid, as he considered himself under obligations to provide for our instruction in pharmacy. The lectures were on three evenings each week.

I remained with Dr. Sander for nearly three years; then I went to "read medicine" with a preceptor, as was the custom in those days. Later on I started a drug store of my own, and also went to medical college, graduating in 1870 from the Missouri Medical College; the following year I went to New York City and graduated from Bellevue Hospital Medical College in 1871; I then went back to St. Louis and commenced the practice of medicine.

Meanwhile the St. Louis College of Pharmacy had had several "lean years"; for in spite of a modest amount of advertising there were no applicants for matriculation; nor, in fact was the college in condition to give instruction, as all its apparatus, museum, herbarium and other collections had been lost in the fire which destroyed the building of the Academy of Science, in which the College of Pharmacy had rooms.

But about 1870 the faculty was reorganized, a new location was secured, new appliances provided, and the work of the college was resumed. Dr. Enno Sander temporarily occupied the chair of Materia Medica, Pharmacognosy and Botany, and he taught pharmacognosy according to the methods introduced shortly before by Prof. Berg of Germany. The credit of introducing modern pharmacognosy in the United States belongs to Profs. Maisch and Sanders, who taught about the same time.

For two or three years, while studying medicine, I saw little of Dr. Sander, but when I commenced to practice medicine, I frequently had occasion to drop in at the old store on Second and Walnut streets, which, however, no longer belonged to Dr. Sander who sold out his interests in the retail business, and confined himself to manufacturing. On one of these occasions I met Dr. Sander, and, as usual, he greeted me as "Herr Professor," and this probably suggested to him the idea of securing a permanent teacher for the chair he temporarily held in the College faculty; he proposed me as his successor in 1873. Dr. Sander gave me his books on pharmacognosy and his written lectures, for like Prof. Maisch, he read his lectures, the notes for which I still have. He was friend and advisor to me, and he was often spoken of by mutual friends as my "pharmaceutical daddy." This friendship continued until his end, and he often visited at our home, enjoying the friendship and esteem of my family and myself, and always remembering us with the season's greetings, or occasionally staying with us for a week-end visit.

For many years, now, I have been the sole survivor of all who worked for Dr. Sander when he was in the drug business; and the years, as they rolled on, simply intensified my admiration and respect for his knowledge of pharmacy and pharmacognosy, and for his

*This was about the end of the Civil war and gold commanded a high premium; the prices of imported articles were based on gold values, which caused some very high prices in U. S. currency.

rare conscientiousness in training his apprentices and in conducting the drug business along strictly ethical and professional lines. He was truly "a grand old man" in pharmacy. May his ashes rest in peace, and may his memory remain as an incentive to all of us to do our best for the interest of our calling.

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CHARLES L. STILLMAN.

Charles L. Stillman, of Lead, S. D., died suddenly on January 20, 1912. He was formerly in business at Columbus, Neb., but removed to Lead, where he has been located for five years. He has been prominent in the pharmaceutical affairs of his state, having served as a member of the Nebraska Board of Pharmacy from 1900 to 1903. He joined the American Pharmaceutical Association in 1910. J. W. E.

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ERNEST MOLWITZ.

Ernest Molwitz died at his home in New York on January 29, 1912. He was born in Rothenburg, Germany, on August 24, 1836. His father was a druggist. Young Molwitz came to this country when fourteen years old, and was employed in the dispensary at Bellevue Hospital when nineteen. After two years spent at Pittsburg he returned to New York and clerked for A. G. Dunn, on Third avenue. In 1868, Mr. Molwitz started in business for himself at Sixth avenue and Fifty-third street, moving to Fifty-fourth street later. In 1886, he sold the business to Otto Boeddicker and devoted his time to his store at Eighth avenue and One Hundred and Forty-fourth street until his retirement in 1909. He took a dep interest in professional pharmacy and in the New York College of Pharmacy. He joined the American Pharmaceutical Association in 1867, and was one of the few who attended both the 1867 and the 1907 meetings of the American Pharmaceutical Association held in New York. A widow, two sons and five daughters survive him. J. W. E.

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BENJAMIN S. WOODWORTH.

Benjamin Stadley Woodworth, a prominent pharmacist of Fort Wayne, Ind., died suddenly on February 22, 1912. He was born in Fort Wayne, and was within a few days of his thirty-eighth birthday. He was educated in the city schools of Fort Wayne and attended Cornell and Purdue Universities, later entering the drug business with his father, and succeeding to the ownership of his father's store. Mr. Woodworth was a member of the Masonic fraternity and a 32° Mason. He became a member of the American Pharmaceutical Association in 1906. He was unmarried, and leaves a brother, Carl Woodworth, of Chicago Junction, Ohio. J. W. E.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—Resolution adopted at the Boston Convention, 1911.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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PHILADELPHIA BRANCH.

(February Meeting)

The regular meeting of the Philadelphia Branch was held at the College of Physicians on the evening of February 6, 1912, Chairman Stanislaus presiding.

A resolution submitted by Chairman La-Wall protesting against the attitude of the Treasury Department in regard to the recovery of tax-paid alcohol used in the manufacture of galenicals was unanimously adopted. In order that the protest might be widespread and effective the committee suggested similar action by other pharmaceutical bodies throughout the country.

Dr. Carl E. Smith was elected a member of the Branch.

Messrs. Kraemer, Vanderkleed and Blair were appointed as members of the nominating committee to select a list of names to be submitted at the next meeting for election to the various Branch offices, as well as to the Council of the A. Ph. A.

The topic of the evening consisted of a contribution on "Purified Caramel and the Standardizing of Caramel Solutions" pre-

sented by Mr. Geo. M. Beringer. The paper is published in full and is well worthy of the attention of practicing pharmacists since it points a way to overcome the varying tinctorial qualities possessed by the Caramel usually available. In closing the interesting discussion which followed the reading of the paper, Mr. Beringer agreed that the final solution of the Caramel problem lay in the working out of the chemistry of the aldehyd resins, but he felt, nevertheless, that his investigations had yielded a product quite sufficient to meet pharmaceutical requirements, which could be supplied at a moderate price.

In discussing the topic, Dr. A. W. Miller outlined the difficulties involved in the manufacture of Caramel. Uniform results were impossible to achieve, he said, and some manufacturers had tried to overcome the difficulty by the addition of anilin colors—a disreputable practice.

Others who discussed the paper from interesting and varied viewpoints were Messrs. Cook, Kraemer, Blair, Horne, LaWall, Stanislaus, and Henry.

Mr. Toplis exhibited an interesting, yet simple, device to be used for sterilizing normal salt and other solutions. The device consisted of an ordinary galvanzed iron bucket sufficiently large to contain eight one-pint bottles in an upright position, and provided with a cover. A raised inner bottom designed to give free circulation of water under the bottles consisted of a tin pie-plate, punctured liberally and used in an inverted position. To prevent ingress of contaminated air into the sterilized solutions, Mr. Toplis stoppers the bottles loosely with proper corks, the latter being covered with pleated parchment-paper caps of sufficient length to extend well down the lips of the bottles, these being drawn closely and tied when the operation is completed.

Mr. Cadmus submitted the report of his committee on the proposed additions to the N. F. The report was adopted and directed to be sent to the proper N. F. sub-committee.

AMBROSE HUNSBERGER, Secretary.

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PHILADELPHIA BRANCH.

(March Meeting)

At the last meeting of this Branch, held on March 5, 1912, the following list of officers was elected to serve during the ensuing year:

President, Dr. F. E. Stewart; First Vice-President, Samuel C. Henry; Second Vice-President, E. Fullerton Cook; Secretary, Ambrose Hunsberger; Treasurer, William McIntyre; Member of Council, Robert C. Cadmus.

Committee on Professional Relations—Frank E. Morgan, Wm. L. Cliffe, Dr. H. C. Wood, Jr.

Committee on Practical Pharmacy—Paul L. McConomy, Geo. M. Beringer, O. T. Osterlund.

Committee on Membership—Otto Krauss, J. W. England, W. E. Lee.

Committee on Program—The President, Secretary, Treasurer and the Chairmen of the above Committees.

A rousing vote of thanks was given the retiring officers for their efforts in the interest of the Branch during the past year.

With Mr. Beringer in the chair the scientific program of the evening was provided by retiring President Stanislaus.

This consisted of an extremely interesting and comprehensive paper on "Biebrich Scarlet and its Pharmacy and Chemistry" in which the writer considered every phase of the topic. No abstract is given as the paper will appear in its entirety.

The advisability of arranging for an exhibit at the approaching convention of the A. M. A. to be held at Atlantic City was referred to a committee consisting of Messrs. Blair, Beringer and Henry. In view of the splendid recognition accorded the exhibit made at a similar convention several years ago the committee will no doubt decide to repeat the demonstration.

A prolonged discussion followed a refer ence to the objectionable features of the Rich ardson Bill now before Congress. The Branch went on record as endorsing the suggestion of President Taft in the matter of therapeutic claims, but the question of stating the opposition of the Branch to certain other features of the bill was referred to the executive committee with power to act.

AMBROSE HUNSBERGER, Secretary.

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PHILADELPHIA BRANCH.

SCIENTIFIC SECTION.

The meeting was called to order Tuesday, March 5, 1912, at 8 p. m., President LaWall presiding.

The topic of the evening was "The Organic Substances of the U. S. P."

The discussion of alkaloids, synthetics, essential and fixed oils, ferments, etc., was par-

ticipated in by Messrs. Beringer, England, Pancoast, Pearson, Rosengarten, Sadtler, Stanislaus, and others.

Dr. J. W. England read a paper on Creosote, calling attention to its variable nature and the difficulty of keeping it within standard limits. He recommends raising the standards for specific gravity and boiling point.

Professor Sadtler spoke of the action of the Revision Committee and commended a reduction in the Pharmacopœa tests so that only the most important ones would be retained, and feels that this would make the Pharmacopœa a much more practical volume.

Professor Pearson called attention to many imperfect tests and proposed a number of more practical ones and mentioned a number of substances which he thought would be well to incorporate in the Pharmocopœa.

He feels that the nomenclature of alkaloids should be retained so that the ending "ina" or "ine" should be used instead of the curtailed "in."

Professor Stanislaus called attention to the fact that the synthetic alkaloids are optically inactive while the natural alkaloids, with three exceptions, are optically active. He showed a sample of sandalwood oil containing 92% of Santalol, which he found to be prepared from 80% East India oil with 20% South American oil. The Amyris or South American oil increases the amount of Santalol present.

Since oil of wintergreen and oil of birch are identical, he recommended that the Pharmacopœa admit only oil of birch since its use is much more common.

Messrs. Rosengarten, Pearson, Sadtler, Pancoast and others gave a general discussion of the subject of the evening, thus producing a very interesting meeting throughout.

At the close of the program the election of officers for the ensuing year took place with the following result:

President—Professor C. H. Kimberly of the Medico-Chirurgical College.

Secretary—Professor F. P. Stroup of the Philadelphia College of Pharmacy.

C. H. KIMBERLY, Secretary.

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NASHVILLE BRANCH.

(February Meeting)

The regular monthly meeting of the Branch was held at Furman Hall, Vanderbilt, February 8, with Dr. J. O. Burge presiding.

The exhibition and criticism of the proposed formulæ of the new edition of the National Formulary was continued from last meeting.

Samples of the Salicylated Mixture of Iron were exhibited. A copious precipitate formed on mixing this was left on the filter. Warming this mixture before filtering was found to aid the solution of this precipitate considerably.

A sample of Compound Gargle of Guaiac exhibited was a very stable mixture.

Samples of Liquid Petrox were also shown. A sample made with the light oil made a clear preparation. Dr. Burge suggested the use of Spirit of Ammonia instead of Alcohol and Stronger Ammonia Water.

The sample of 10 percent Iodine Petrox was an elegant pharmaceutical. The Petroxoline preparations form emulsions that do not separate easily when mixed with water.

William R. White read a paper before the Branch on the subject "Pharmaceutical Arithmetic," in which some very interesting practical problems were discussed. Considerable discussion followed the reading of this paper.

A resolution was passed instructing the Secretary to write the Nashville Academy of Medicine in regard to the desirability of having a joint meeting of the two associations to discuss the samples of the proposed additions to the next edition of the National Formulary.

The subject assigned for the regular March meeting was "Disinfectants and How to Use Them."

William R. White,
Secretary.

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NASHVILLE BRANCH.

(Joint Meeting with Academy of Medicine)

The Branch held a joint meeting with the Nashville Academy of Medicine Tuesday night, February 27, to discuss and criticise the formulæ and samples of the new preparations proposed for the next edition of the N. F., a very large crowd being present.

Dr. J. O. Burge spoke on the history and work of the Branch, and Dr. E. A. Ruddiman, after explaining the status of the N. F. and the objects of the meeting, exhibited samples and formulæ of the proposed preparations.

Quite a good deal of discussion was had and some very good criticisms were made by the physicians. A resolution was passed by the Academy that it was the sense of the

physicians that the number of formulæ should be lessened and the others simplified as much as possible.

The meeting was in most respects a harmonious one and expressions of good feeling were made by both bodies.

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CHICAGO BRANCH.

(February Meeting)

The February meeting of the Chicago Branch of the American Pharmaceutical Association was held at the University of Illinois School of Pharmacy on Tuesday evening, February 20. The program consisted of a lecture upon the National Formulary by Professor C. M. Snow, who displayed an extensive exhibit of preparations of the National Formulary. Professor Snow's talk was greatly enjoyed and was followed by a discussion, which was participated in by Professor Clark, Mr. Potts, Mr. Gray, Mr. Becker, Professor Patterson and other members of the Branch.

Secretary Day announced that the March meeting would be a notable one, and read a letter from Professor J. U. Lloyd accepting an invitation from the Branch to make an address at the next meeting. Professor Lloyd will talk about his travels in the Orient and will discuss the collection of drugs as witnessed by him during his travels.

The officers of the Branch have extended an invitation to the Chicago Retail Druggists' Association to make the March meeting a joint meeting of the Branch and the C. R. D. A.

The March meeting will be held on Thursday evening, March 21, the date having been changed to suit Professor Lloyd, who was unable to come for the regular meeting night.

A cordial invitation is extended to all the druggists of Chicago and vicinity to attend this meeting, which will be held at the Northwestern University Building, Lake and Dearborn streets.

W. B. DAY,
Secretary.

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CHICAGO BRANCH.

(March Meeting)

The March meeting of the Chicago Branch of the American Pharmaceutical Association was the most successful and most largely attended meeting that the Branch has held for several years. By invitation of the Branch the Chicago Retail Druggists' Association joined with the Branch for this meeting and was well represented both in officers and in members.

The guest of the evening was Professor John Uri Lloyd who gave a most interesting talk concerning his travels in eastern lands and his observations concerning the collection and shipment of such drugs as opium, licorice, tragacanth, myrrh, frankincense, nutgalls, etc. Professor Lloyd's lecture was enlivened by many anecdotes and reminiscences and greatly delighted his auditors.

At the conclusion of the lecture Professor Lloyd was given a rising vote of thanks.

W. B. DAY, Secretary.

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NORTHERN OHIO BRANCH.

The regular meeting of the Northern Ohio Branch was held at the Cleveland School of Pharmacy, March 8th. The following officers were elected for the ensuing year: President, L. C. Hopp, Ph. G.; Vice-President, Wm. T. Hankey, Ph. G.; Secretary-Treasurer, T. Bernard Tanner, P. D.; Member of the Council, L. C. Hopp.

A very interesting paper was then presented by Professor N. A. Dubois, on The Test Solutions of the U. S. P., with a brilliant array of figures. Dr. Dubois pointed out the advantage of having the solutions made up according to normality instead of percentage strength, as they are at the present time.

The following took part in the discussion: L. C. Hopp, Professor Feil, John Krause, Wm. T. Hankey, Professor Tanner.

Professor Tanner then read a paper on the Solution of Magnesium Citrate, with a suggested modification in method of manufacture. Dr. Tanner said that he thought the present formula very satisfactory, but thought in view of the fact that unless the solution is protected by being distinctly acid precipitation will take place, that he could see no reason why the syrup of Citric Acid should

not be added at once, this additional quantity of acid seemingly to promote the formation of a bicarbonate after the potassium bicarbonate had been added. Mr. Hankey said that he had used the method suggested by Professor Tanner for over twenty years and was surprised that the majority of pharmacists did not know of it. The paper was very thoroughly discussed by L. C. Hopp, W. F. Fox, Professor Feil, Wm. T. Hankey, John Krause and others. Professor Tanner presented examples of the solution prepared by the method which were practically permanent.

Mr. Hopp then brought up the discussion of Ointments, Ungt. Phenolis being discussed particularly. It was the unanimous opinion of everyone present that the addition of wax to the base of this Ointment would be a decided advantage. Mr. Hopp also spoke of the duo-decimal system for the manufacture of Triturations, saying that since the Troy system was still in great use, he thought twelve a better figure than ten.

The subject of manufacture of Glycerin suppositories was then quite fully discussed by Hopp, Tanner, Feil, Hankey and others.

T. BERNARD TANNER, Secretary.

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DENVER BRANCH.

The Denver Branch gave a dinner at the Traffic Club Tuesday evening, February 20, at which Messrs. Robert S. Hiltner, W. A. Hover, L. B. Bridaham and E. L. Scholtz were guests of honor.

The dinner was followed by the regular meeting, which President Best called to order at 8:30 p. m. The minutes of the January meeting were read and approved. Mr. Bresler reported the election of Mr. Jeanson as Secretary of the Program Committee.

Mr. Robert S. Hiltner, Chief of the U. S. Food and Drug Inspection Laboratory of Denver, who was on the program for a paper on Drug Adulteration, was then called on by the President.

A hearty vote of thanks showed the appreciation of Mr. Hiltner's paper.

The Richardson amendment of the Federal Food and Drugs Act, which was on the program for discussion, was now taken up. Mr. Nitardy read a paper which he stated had been written for the February issue of the Rocky Mountain Druggist. A very lively discussion ensued. Mr. Clayton stated that in his opinion the sentence in Sec. 8, making any drug misbranded "when represented to the public as having any remedial property," was rather radical and would make it impossible to sell any kind of a patent medicine.

Mr. Ford explained that in this sentence lay the life and value of the proposed amendment. As long as the ruling of the Supreme Court regarding therapeutic statements, as illustrated in the Johnson Cancer Cure case, would stand, it would be impossible to make a law forbidding lies on the label. The only manner in which the evil can be checked lies in forbidding all therapeutic claims on the label. The amendment if passed would not prohibit the sale of patents, but would prohibit any and all therapeutic claims, false or true, on the label. Preparations would be sold on their merit only. To illustrate the point, he said that under the new amendment castor oil might be sold under a label stating that it is castor oil and a laxative or cathartic, to be taken in such or such doses; but if the label should state that it was a remedy or cure for constipation, the article would be deemed misbranded. Mr. Ford further stated that it must be remembered that the law would only affect interstate traffic and that a drastic federal law would be a protection to the individual states. Under present conditions state laws are nullified because merchants from outside states can ship in anything and everything so long as they do not violate the federal law.

Mr. Bresler spoke along the same line, giving illustrations where our pharmacy law was made void through the lack of sufficiently stringent federal laws.

Mr. Hover thought that lye and tobacco had no proper place in a Food and Drugs law and should not be included. Others could see no objection to including them. Surely no harm could come from the honest labeling of these articles, even though they may not be properly classed as foods or drugs.

Mr. Clayton expressed himself on this subject by saying that he believed that we were coming towards a time of honest merchandising, a time where not only foods and drugs but all manner of merchandise would have to be true to label or claims made for it, and the sooner we would reach this point the better for all concerned. His remarks were applauded by all.

Mr. Nitardy criticised the amendment for permitting official drugs and preparations to

be sold under official names when they deviate from the official standard, and offered the following resolution:

"*Be it Resolved,* By the Denver Branch of the American Pharmaceutical Association, that we recommend that the Food and Drugs Act of June 30, 1906, be so amended that all articles sold for medicinal purposes that are recognized by United States Pharmacopœia or National Formulary shall conform to the official standard and be deemed misbranded if they do not conform to the standards laid down by these authorities; provided, that they may be sold when not conforming to these standards if plainly labeled, '*Not for Medicinal Use.*'"

After a lively debate the provision was added to the resolution by Mr. Nitardy, its final form being the above mentioned. A motion to adopt the resolution was carried by unanimous vote.

It was decided to consider the Richardson amendment further at the next meeting, as the bill had not been thoroughly studied by all members.

F. W. NITARDY, Secretary.

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CITY OF WASHINGTON BRANCH

(February Meeting)

The February meeting of the City of Washington Branch was held on February 21, 1912, in the Trustees' Room, National College of Pharmacy, George Washington University.

After completing the routine business before the Branch, and discussing the acceptance of the invitation of Dr. True to visit the drug gardens at Arlington, Va., the proposed Petrox preparations were discussed.

A motion was duly made and carried to accept the invitation of Dr. True, and the time of the visit was set for May.

The first of the Petrox preparations to be discussed was Liquid Petrox. Several samples of this preparation made on various dates were exhibited.

A motion that it be recommended that the directions for making this preparation be so amended as to read that heat be used only when the preparation is not clear, was carried.

At this point a very interesting letter from Dr. Thum of the Philadelphia, Pa., German Hospital was read. He recited his experiences with this preparation and suggested a modified formula with which he had had much success.

The difficulty in getting stronger ammonia water which had not lost considerable of its strength for making this preparation brought up a discussion as to the merits of anhydrous ammonia for preparing ammonia water, stronger ammonia water, and spirit of ammonia. A letter from Edward Mallinckrodt calling attention to the danger of explosion from the too rapid evaporation of the ammonia, causing a vacuum to form; the cylinders then refilling by sucking back (usually unnoticed by operator), and then because of an insufficiency of space being left in the cylinders for expansion, they are liable to explode with the rising temperature. Very serious accidents have occurred, it was stated, from this cause, and would be more likely to occur when the anyhydrous ammonia was handled by inexperienced druggists and their assistants. Mr. Mallinckrodt recommended that the handling of anhydrous ammonia be limited to experienced refrigerating engineers. Nevertheless, it was shown that stronger ammonia and spirit of ammonia could be prepared at a considerable saving, and it was then assured that these preparations would be of the full strength essential in the making of Liquid Petrox and numerous other preparations.

Great care should be taken in the selection of the alcohol and the stronger ammonia water used in Liquid Petrox, for if the ammonia water has lost part of its strength, and the alcohol is not U. S. P. standard, the finished preparations will be unsatisfactory and may be of numerous varied colors.

Considerable criticism was made of the idea of having so many preparations combining Liquid Petrox with medicaments where no technical skill was required to mix, and burdening the National Formulary in this manner.

A motion, therefore, was made wherein it was recommended that the National Formulary have but one basic Liquid Petrox preparation, that under its subject matter, statements be made showing that various medicaments readily soluble therein, that in certain percentums they are best fitted for dispensing in said basic preparation, and that in the event a physician prescribes one of the medicaments listed, failing to state the strength he wishes, the strength recommended under the subject matter of Liquid Petrox be dispensed.

In the samples of Iodine Petrox, 5%, presented, crystals of Iodine were present and a

sediment of Ammonium Iodide and Iodate was in the bottle. The 10% solution was in almost the same condition.

A new formula for the 10% Iodine Petrox was suggested, as follows:

Iodine	10.
Alcohol	15.
Acid Oleic	15.
Liq. Petrox, qs	100.

The sample of Iodoform Petrox was wholly unsatisfactory. Free iodine was present and a distinct odor of acetone was distinguishable.

Attention was called to the improper naming of Sulphur Petrox, which should be called Balsam of Sulphur Petrox; and Compound Sulphur Petrox, which should be named Compound Balsam of Sulphur Petrox.

Attention was invited to the fact that both iodoform and sulphur when mixed with solid petrox, made excellent extemporaneous preparations and can be most successfully dispensed in that manner.

The samples of solid petrox made according to the proposed formula were unsatisfactory as each had separated into layers.

The following formulas, both of which have been successfully made and used, were presented:

(1)	Paraffin	25.
	Liq. Petrox	20.
	Woolfat (anhydrous)	10.
	Oleic Acid	3.2
	Oil Lavender	3.
	Alcohol	5.
	Stronger Ammonia	5.
(2)	Spermaceti	20.
	White Wax	15.
	Liq. Petrox	20.
	Oleic Acid	3.2
	Oil Lavender Flowers	3.
	Alcohol	5.
	Ammonia Stronger	5.

A modified formula for Mercury Petrox, the sample of which made according to the proposed formula being unsatisfactory, was proposed by Dr. Hilton, as follows:

Mercury	30.
Oleate of Mercury	2.
Anhydrous Woolfat	13.
Solid Petrox	55.

Triturate the mercury with the oleate of mercury in a warm mortar until globules of the intimately distributed metal are no longer visible. When the mixture is examined under a lens magnifying ten diameters, incorporate the woolfat, and then the solid petroxolin thoroughly.

Dr. Flemer then read a paper on the derivation of the word "Elixir," and cited numerous authorities to show that the derivation is uncertain and the meaning varied. Several criticisms were made of the United States Pharmacopœa, and National Formulary for not containing a definition for this word and hope was expressed that the deficiency would be remedied.

A motion was made that the title Essence of Pepsin be changed to Elixir of Pepsin and Rennin Compound, with Essence of Pepsin and Elixir of Pepsin as synonyms. This recommendation supersedes that made in the January meeting relative to the name of this preparation.

HENRY B. FLOYD,
Secretary.

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CITY OF WASHINGTON BRANCH

(March Meeting)

The March meeting of the City of Washington Branch was held March 13, 1912, at the National College of Pharmacy, Washington, D. C., and at the suggestion of President Flemer there was a general discussion of the merits of fluidextracts as preparations. Mr. Flemer, from his own experiences, believes that the fluidextracts of the U.S. P. and N. F. are impracticable to make in small quantity, and can seldom be satisfactorily diluted.

Dr. Kalusowski, Dr. Kebler, and Mr. Wilbert recited their views in the matter, all concurring in the belief that all the fluidextracts with the exception of about six, were not a credit to American pharmacy, and merely offer an opportunity for making tinctures, infusions, decoctions, syrups and other preparations in a manner not sanctioned by the U. S. P. or the N. F. Especial attention was invited to fluidextract of digitalis, as an example in support of this latter statement. It was stated that physicians are discontinuing the use of infusion of digitalis, because they can not get the results expected, and merely because the pharmacist makes the infusion

from the fluidextract. The product made from the leaves is entirely different from that made from the fluidextract, and therefore the expected results could not be obtained.

Strong protest was made against the policy of manufacturing pharmacists giving formulas for making tinctures, infusions, syrups, and other preparations on the labels of bottle containing fluidextracts. It was pointed out that the original fluidextracts were intended for internal administration, without dilution, but that this idea in their manufacture had long ceased to exist, and the tendency now is to produce a basic preparation for the making of other preparations of the same drug.

It was stated by Dr. Kalusowski that more fluidextracts were consumed by patent medicine manufacturers, than in any other way, and the next largest use for such preparations was for preparing compressed tablets.

Following this discussion a motion was made, and carried, that the addition of fluidextracts to the U. S. P. or N. F. be discouraged.

Fluidglycerates were then considered. The consensus of opinion was that there was little need for such preparations in the U. S. P. or in the N. F., and that they would not make desirable additions thereto. Of the samples of the fluidglycerates proposed for the National Formulary, which had been prepared by Dr. Hilton and submitted by him for the inspection of the branch, glyccyrrhizæ appeared the most useful and elegant. A slight excess of ammonia was noted, although Dr. Hilton expressed his opinion that more ammonia was required.

A motion was made, and carried, that the City of Washington Branch deprecate the addition of any preparation or preparations to the National Formulary for which there is no actual demand and but little use, and that as fluidglycerates fell under this class of preparations, it was recommended that they be not added to the list of preparations to be included in that work.

The next meeting of the Branch was ordered to be held on April 10, 1912, at the National College of Pharmacy, and be devoted to a discussion of the granular salts proposed for the National Formulary, and to the reading of papers on Glycerin and Bees' Wax, by Mr. Fuller, and Dr. Kebler.

HENRY B. FLOYD, Secretary.

PITTSBURGH BRANCH.

The March 12th meeting of the Pittsburgh Branch was again favored by a good attendance of students, while the excellent promise held out by the program brought together a number of representative men in pharmacy, among them Dr. J. H. Beal, General Secretary of the American Pharmaceutical Association, and Editor of the Association Journal.

Dr. A. F. Judd suggested that the holding of the meetings on Tuesday evening interfered materially with the attendance of the senior students, many of whom are much interested in the work of the Branch, and submitted a proposition in writing, as required by the by-laws, to be acted upon at the next meeting, fixing the second Friday of each month as the time for the regular meetings hereafter.

A communication was read from the President of the National Association of Pharmacologists, accompanied by a draft of a proposed act of legislature providing for reciprocity in registration of pharmacists between the states. An interesting discussion followed as to the wisdom of this Branch acting thereon as requested, during which Dr. Beal stated that while he favored reciprocity in registration, he did not think the form of bill proposed would meet the situation. In this view Dr. Emanuel, President of the Pennsylvania State Board, warmly coincided. The communication was received and placed on file.

Dr. Emanuel presented a valuable paper bearing upon the proposed Richardson amendment to the Federal Food and Drugs Act. In the course of his paper Dr. Emanuel says:

"Now is the accepted time for the parent body, the A. Ph. A., to make good its aim to suppress empiricism, and to restrict the dispensing and sale of medicines to properly educated druggists and apothecaries, as expressed in paragraph five of its constitution. Here is an opportunity that will not come soon again, for this bill will surely prove a solar plexus blow to proprietary and secret medicines. All legislation should aim to protect and benefit the ultimate consumer, and this is certainly the aim of this bill. I would like to have the pharmacists wake up and take enough interest in the bill so that when properly amended it will, as a secondary re-

sult, take care of their interests and, at the same time, keep medical practitioners from added aggressiveness."

Dr. Emanuel then suggested several important amendments, among them that the term misbranded shall apply "If the compounder or vender thereof is not authorized under the law of the state or community to practice pharmacy where the article is produced or offered for sale directly to the consumer." "When represented to the public in any manner as having any remedial property which cannot be substantiated by authorities on medicine, therapeutics or pharmacology." "If any statement or expression of opinion concerning its physiological, therapeutic, remedial or nutritive property be made or promulgated in any manner so as to deceive or mislead the purchaser or the prescriber."

Dr. Kutscher insisted that the bill in its present shape would prohibit the sale of a large number of the most commonly used and innocently sold drugs by the pharmacist, and for which there exists perfectly legitimate uses.

Dr. Beal said: "The bill evidently does not meet the intention of its author, as can be readily seen by the language used in its construction. I am free to confess that if some of the indefinite provisions were eliminated or corrected, I strongly favor the bill. The provision permitting U. S. P. and N. F. preparations to differ from the official formula when so stated on the label is the same as in the present law, and is necessary, but should be guarded by amendment to prevent abuse. Experience under the present Food and Drug Law clearly shows that the privilege has been exercised more frequently for fraudulent than for righteous purposes. Permissible variation is ofttimes a necessity, as, for instance, where an article is intended for purely technical or commercial purposes, and not for medicinal use, and the word *technical* conspicuously placed upon the label should be sufficient. Where the spirit content constitutes the variation it could be clearly expressed by stating the percentage of alcohol present."

Discussion of proposed N. F. formulas was participated in by Drs. Kutscher, Saalbach, Judd, Koch and Emanuel. Mistura Ferri Salicylatis, which had been referred to a special committee for experimentation, was given much attention. Dr. Saalbach reported that a perfectly clear mixture results from the addition of a larger amount of ammonium carbonate than the formula contains, and presented a new working formula for presentation to the committee. Dr. Emanuel suggested that attention should be given to the matter of decomposition and to what changes take place, and why the citric acid and the ammonia are used. Dr. Koch said the latter ingredient is necessary to dissolve the sodium salicylate. Mr. Campbell asked for suggestions as to why this preparation is being given consideration, but none were forthcoming. Dr. Saalbach also presented several samples of the Petroxolin preparations, and said that the N. F. process will not produce complete saponification, hence he had resorted to a different method by which a perfectly clear mixture is brought about.

Dr. Judd, who had undertaken to prepare a sample of Extractum Cinchonæ Liquidum, said he had repented of his rash promise long before reaching the goal of a finished product. Trouble began at the point where the instructions read, "then allow the percolation to proceed slowly until the Cinchona is exhausted." After having used up something like eight litres of water the point of exhaustion (except in his own person) seemed to be still somewhere in the remote future, while the water was running up the figures on the water meter, and when he realized that his finished product was to measure but one litre, his mind reverted to what was going to happen to the gas meter when evaporation set in, then he got cold feet and threw up the job. He recommended that owing to the impracticability of the pharmacist preparing this formula in the pharmacy it had better be eliminated.

The balance of the time of the session was given over to Dr. J. H. Wurdack who, starting with the crude ore, carried his audience through all the processes involved in the fire assay of ores to determine their value in content of the noble metals. He had a complete outfit of tools, utensils and appliances at hand and at the proper point made each ones use apparent, and was given a very enthusiastic vote of appreciation by his audience.

P. E. PRITCHARD,
Secretary.

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All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

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THE A. PH. A. AND N. A. R. D.

WILHELM BODEMANN.

President Godding has called on the Membership Committee of the various states to get busy; being a new broom in this line I must make at least a bluff at it, to do my part.

I shall not work the old racket of "five dollars' worth of Proceedings" for we have made a radical change by doing away with the old fashioned bound volume of proceedings and publishing these in connection with the splendid new JOURNAL OF THE A. PH. A., edited by Doctor Beal, and which goes to all members of the Association. The average druggist, I venture to say, consulted the baseball score more zealously than the old Proceedings, which sometimes reached him fifteen months after the date of the meeting.

But, I appeal to the druggists of Illinois for other and even better reasons to join the A. Ph. A. The N. A. R. D. is made up exclusively of active retail druggists, and rightly so; the A. Ph. A. invites to its membership all men and women, engaged in pharmacy and its related branches—pharmacists, clerks, teachers, editors, manufacturers and dealers in pharmaceuticals are found among its members.

The N. A. R. D. and A. Ph. A. should go hand in hand—a good N. A. R. D. man will round out his *usefulness* by joining the A. Ph. A.—and most A. Ph. A. men will round out their *youthfulness* by taking in the N. A. R. D.—special committees have charge of that part—and this combination, like the old coon trap, will catch them a-comin' and a-goin'.

LEARN HOW MEAN YOU ARE.

Therefore, Brother Retail Druggists, if you wish to meet the "allied interests" on the "Forum of the Convention" join the A. Ph. A.; then you can have it out with them on neutral ground and meeting these men may have the surprising discovery in store for you, that you perchance are as mean as the other fellow, or meaner. Anyway, you get next to them and can have a chance at them.

Why the State of Illinois should be so poorly represented in the A. Ph. A. is a mystery. We raise a good crop of standard-raisers but it looks like fanned-mouthed standard-raising when you see that a great number of the aforesaid standard-raisers have been dropped from the rolls for non-payment of dues, or have never joined, and yet it is admitted by all that the A. Ph. A. stands at the head of the procession for Standard Raisers.

YOU; YES, YOU.

You, who are graduates of pharmacy ask your professors whether or not you should join the A. Ph. A. You, who are not graduates but are acquainted with editors of pharmaceutical journals ask their advice and I am sure they will urge you to join. For further information write me if you wish, or better yet, write to Professor W. B. Day, 74 E. 12th Street, Chicago—and we will all meet at Denver in August and then you can tell me how you like it.—*N. A. R. D. Notes.*